

Smart Libraries Newsletter

News and Analysis in Library Technology Developments



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Smarter Libraries through Technology Customer Relationship Management

By Marshall Breeding

Libraries are beginning to shift their emphasis of technology support systems from a narrow focus on the back rooms of processing collection materials to an expanded view that's more inclusive of the front lines of information services and patron engagement. Library automation systems developed to date have focused primarily on managing and providing access to collections. The integrated library system and the more recent genre of library services platforms have developed very sophisticated functionality for technical services and for circulation of physical materials. Discovery services enable library users to easily find and gain access to patron materials and continue to improve capabilities for digital lending. These systems have not, however, been developed to deliver sophisticated tools to help libraries assess and improve their services to patrons or strengthen engagement. Room remains to extend the scope of the core library automation infrastructure to fill voids unaddressed by traditional models of functionality. These tools adopt the characteristics of products and services available in the business sector for marketing automation and customer relationship management but are tuned to reflect the values and strategies of libraries.

The primary patron-facing service supported by current library automation systems has been the circulation of collection materials. Circulation modules take a transactional approach to managing the print and digital materials lent to library patrons.

Most of the messaging capabilities built into library automation systems revolve around circulation activities. The standard functionality in a circulation module automatically generates messages to patrons to return or renew items past their due date or bills for fines incurred. Some libraries opt to send reminder messages in advance of the due date to help patrons avoid late fees. Such messages support the transactional nature of circulation but do not necessarily strengthen the bonds between the library and the community it serves. These messages, given their punitive tone, can reinforce less than positive impressions of the library.

Libraries can benefit from systematic technology designed to invite its community members to take advantage of its full range of programs and services and to help build a positive image of the organization. Further, capabilities are needed to help the library develop a complete picture of the interests and needs of its community members, which can serve as a resource as it makes operational decisions and shapes its strategic planning. Many libraries have already taken an interest in marketing and engagement processes and have implemented products and services to help support these efforts.

Strategies for customer support, engagement, and marketing have been developed for many business sectors through a genre of software known as customer relationship management (CRM) or marketing automation. These products include a suite of components, usually based on a data warehouse populated with information describing the activities and interests of current and potential customers, use patterns, profiles or personas that enable highly customized analytics, reports, and messaging streams. Based on detailed customer profiles, use data, demographics, and event triggers, these platforms are able to generate highly targeted messaging across multiple channels with higher rates of success at eliciting some type of positive response.

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I have been interested in the opportunities for libraries to improve their services through adopting advanced analytics and CRM technologies for many years.¹ Products and services along these lines that are oriented to libraries have emerged and evolved in recent years. Academic libraries have been especially interested in analytic tools able to measure and assess collection performance to inform acquisitions and cancellations of electronic resources. Public libraries have shown a growing interest in tools to support their activities related to marketing, promotion, and engagement.

A few library-specific products have been developed. The ones that I have come across include Savannah from Orange-Boy (<https://www.orangeboyinc.com/savannah-overview/>), Patron Point from Third Chapter (<http://www.thirdchapter.com/patron-point/>), and LibCRM from Springshare (<https://www.springshare.com/libcrm/>).

The integrated library system provides only the skeleton for the body of data needed to power a CRM environment. These products include a patron database populated with basic information needed to help support circulation transactions. Each record contains physical addresses, e-mail addresses, and birthdates, but usually not a great deal of information, which might be needed to support a sophisticated CRM environment. Data regarding involvement with library services, such as borrowing history, is usually limited. Most libraries opt not to retain lists of items previously borrowed as part of their patron privacy policies.

The paucity of data retained within the circulation environment reflects the contrasting values between libraries and other types of organizations. Most commercial organizations design their business environment to capture and retain the maximum level of data for each of their current and potential customers and any grain of data related to browsing and buying. They continually mine this data for advertising and messaging in hopes to generate new sales. Libraries, in contrast, tune their systems to retain the least amount of data, recording only what is needed for ongoing borrowing activity and purging or anonymizing completed transactions. Most libraries work hard to provide an environment where their users can be assured that the items they borrow will not be disclosed to anyone. Routine anonymization of completed circulation transactions provides protection even to orders from law enforcement.

Libraries interested in implementing CRM can enrich the data available while being consistent with policies relating to patron privacy. It's possible, for example, to retain categories of

1. See "Data-Driven Libraries," *Computers in Libraries* 34, no. 7 [September 2014], 23-26, and "Transformations in Academic Libraries Demand Transformed Automation Support," *Computers in Libraries* 31, no. 4 [May 2011], 27-29.

usage data by giving patrons the opportunity to opt in to saving their history of checkouts when they register as a borrower or update up their profiles. Additional data sets can be layered into the environment such as census data or other demographic descriptors for each zone within the library's service area. Compared to the commercial sector, libraries face more challenges implementing effective promotion and engagement services given their protective approach regarding patron data.

The Kitchener Public Library in Ontario, Canada recently carried out a procurement process for a new library automation environment with requirements that included CRM functionality in addition to that of the traditional integrated library system. According to the library's Chief Executive Officer Mary Chevreau, the major integrated library systems available on the market are expected to be able to offer adequate capabilities for traditional modules, but they are looking for a more customer-focused environment. The request for proposals that the library developed included an extensive section on requirements for marketing and customer engagement. The introduction to this section states:

The marketing system should offer the following overall features and benefits. The vendor is asked to provide a response as to how its offering meets each of the criteria. The solution proposed should provide:

- An integrated, up-to-the-minute patron and non-patron dataset including demographics, activity (checkouts, renewals), and monitored/solicited behaviors (surveys, email responses);
- A comprehensive set of reporting allowing the Libraries to make better informed decisions and increase visibility into virtual and "non-circ" patron activities;
- A broad set of email, website, and social interaction tools to allow for the development of engagement programs that are customizable to Kitchener Public Library's marketing and operational goals;
- Complete on-boarding and on-going technical support and marketing consulting services.²

The RFP indicated that vendors could provide these capabilities directly or through a partnership with another company: "With this in mind, we strongly encourage vendors to

2. Kitchener Public Library and Waterloo Public Library, "Request for Proposal for a Library Management System for Kitchener Public Library and Waterloo Public Library," procurement document, May 15, 2017, <https://librarytechnology.org/procurement/item.pl?id=134>, 10. The RFP was written to serve both Kitchener and Waterloo libraries for their integrated library system. Kitchener has selected Patron Point for their CRM system; Waterloo has not yet made any decisions regarding CRM systems.

collaborate/partner with marketing/customer engagement companies outside of the vendor family, if the vendor cannot currently demonstrate and support a strong marketing component.”³ The RFP developed by Kitchener is the first to include a mandatory CRM component as part of an ILS procurement.

The Kitchener Public Library has awarded the CRM portion of its procurement process to Third Chapter Partners for its Patron Point patron relationship management system. The integrated library system component of the procurement has not yet been finalized or announced.

Third Chapter Partners (<http://thirdchapter.com>) was established in 2016 as a new consulting firm offering a diverse set of services to libraries. The firm was founded by Ted Fons, Gene Shimshock, and Tom Jacobson. Each have extensive experience with library automation vendors, including Innovative Interfaces and OCLC. Jacobson, as noted elsewhere in this issue of *Smart Libraries Newsletter*, has since left the firm to return to Innovative.

Shimshock and Fons have focused on assisting libraries with marketing and promotion and have spearheaded the development of Patron Point, a marketing automation environment able to produce custom reports and visualizations and to generate messaging for patron engagement. The product collects data from multiple products used by the library, including its integrated library system, PC reservation

systems, and digital lending platforms to create a broad representation of patron activity. Third Chapter is then able to configure the Patron Point platform to execute the library’s marketing and promotion strategy, including both outgoing messaging and dynamic reports. Patron Point is based on the SharpSpring marketing automation platform (<https://sharpspring.com>), which provides a generic set of capabilities that Third Chapter uses to fulfill the library’s desired outcomes.

Early adopters of Patron Point included The Delaware County Public Library in Ohio, the Skokie Public Library in Illinois, and the Ferguson Library in Connecticut. In addition to the Kitchener Public Library, the firm has recently announced the adoption of Patron Point by two major municipal libraries, the Topeka and Shawnee County Public Library and the Las Vegas–Clark County Library District.

Libraries continually strive to be more responsive to the organizations and communities they serve. Many technology products have been developed and implemented to increase their efficiency, including integrated library systems, self-service kiosks, and automated materials handling. Ever-improving online catalogs, discovery services, and content management systems provide interfaces enabling patrons to find and access collection materials. An important next phase of technology support extends beyond these areas to also include stronger tools for data-driven strategic planning, marketing, and patron engagement.

3. “Request for Proposal for a Library Management System,” 10.

Ex Libris Establishes Connect Partner Program

Ex Libris has launched a new program that provides an official mechanism for third party organizations to integrate products with Alma and other products. This program enables other commercial or non-profit vendors to tap into the APIs exposed by its products to create services of mutual interest to external vendors, to Ex Libris, and to the libraries that might take advantage of these integrated solutions. This program formalizes arrangements that have previously been available informally. As the number of services and organizations involved in the ecosystem of Alma APIs expands, additional structures, legal agreements, and technical safeguards are needed to ensure consistent and reliable interoperability.

The Content Partner Program includes technical requirements such as the testing and certification of an integrated service and the validation of the security and data protection mechanisms used. Participating organizations will gain access to the Ex Libris Developer Network, including documentation

and other technical resources, as well as access to other implementation and support information. Business arrangements would include reciprocal access to the products and data sources involved and mutual disclosures of product roadmaps to ensure ongoing alignment of functional and technical interoperability. Participants would also benefit from Ex Libris promoting the resulting integrated solution to its customers.

Beyond existing arrangements in place now, new vendors offering services based on integrated services with Alma or other Ex Libris products will be required to join the Connect Partner Program.

This program does not reflect a new strategy for integrating third-party products, but rather provides a more clear and formal framework. Ex Libris has a long history of using open standards and developing and exposing APIs for use by its customer libraries and with third party developers on behalf of its customers. The company makes over 150 APIs available and reports

that more than fifty percent of Alma transactions take place via APIs relative to those conducted via its user interfaces.

Libraries using Ex Libris products do not need to sign any additional agreements to make use of the APIs for their own use. It is expected that libraries will make use of the APIs for

interoperability with campus authentication services, student information and financial systems, self-service kiosks, and other routine interactions. The standard software-as-a-service agreement includes library access to the APIs.

Digital Science Launches Dimensions

Digital Science, a major provider of products and services for research and scholarly communications, has launched Dimensions as a new citation database product that includes discovery, analytics, and links to scientific articles. Dimensions will be a potentially disruptive product, offering free access to a very large citation database in a field of subscription-based competitors. Digital Science also offers subscriptions to Dimensions with additional features.

Dimensions goes beyond traditional citation indexing by providing information regarding the funding and research context for each article, including funding agencies, grants, patents, and clinical trials. The current product is a relaunch of Dimensions. The earlier version centered only on the research context and did not include a citation database.

The free version of Dimensions provides a search engine for the citation database of 89 million publications. Paid subscriptions enable access to a premium version that includes the citation metrics and the research context features. The premium version also enables access to an API for programmatic access to queries and search results.

Dimensions represents a major new competitor in a product genre of scientific discovery tools that also includes Elsevier's Scopus and Web of Science from Clarivate. View Table 1 in the Appendix on page 7 to see a comparison of these three discovery tools. These discovery tools focus on the body of scientific literature and differ from broad-based discovery

services, such as EBSCO Discovery Service, Primo, Summon, and WorldCat Discovery Service, which index content across all academic disciplines.

Digital Science is a portfolio company of the Holtzbrinck Publishing Group founded in 2010 as a spin-off from Macmillan Publishers and Nature Publishing Group. Holtzbrinck is the majority investor in Springer Nature. Some of the portfolio companies of Digital Science include:

- Altmetric
- Digital Science Consultancy
- Figshare
- Readcube
- Symplectic
- ÜberResearch

For more information on Dimensions, see:

- Roger C. Schonfeld, "A New Citation Database Launches Today: Digital Science's Dimensions," *Scholarly Kitchen*, January 15, 2018, <https://scholarlykitchen.sspnet.org/2018/01/15/new-citation-database-dimensions/>.
- Richard Van Noorden, "Science Search Engine Links Papers to Grants and Patents," *Nature*, January 16, 2018, <https://www.nature.com/articles/d41586-018-00688-0>.

People in the News

New Leadership for Follett Corporation

Follett Corporation has announced that Ray Griffith has retired as its Chief Executive Officer and has been succeeded by Patrick E. Connolly, effective January 2, 2018. Griffith joined Follett in May 2015, following the retirement of Mary Lee Schneider. Prior to joining Follett, Griffith was the Chief

Operating Officer of Ace Hardware for two decades. Under Griffith's tenure, Follett made a number of strategic acquisitions, including the Nebraska Book Company's retail store division, Bookmasters, and Baker & Taylor.

Connolly joins Follett following a thirty-year executive career at Sodexo, with roles ranging from Regional Sales Director for school districts in the Midwest to Chief Operating

Officer North America and President of Health Care North America.

Follett is a family-owned business with over three billion in annual revenue, with divisions offering products to Pre-K–12 schools and districts and higher education. Baker & Taylor, a major distributor of materials to public libraries and retailers worldwide, was acquired by Follett in April 2016.

Mary Lee Kennedy Appointed Executive Director of the Association of Research Libraries

The Board of Directors of the Association of Research Libraries (ARL) has selected Mary Lee Kennedy as its next Executive Director. Kennedy comes to ARL with substantial experience with academic, public, and corporate libraries as well as an international perspective. She recently served as the Chief Library Officer of the New York Public Library. She was a Senior Associate Provost for Harvard University and was director of the Knowledge Network Group at Microsoft. Anne R. Kenney has served as Interim Executive Directory since the retirement of Duane Webster in January 2018. ARL is a non-profit organization of 123 research libraries in the United States and Canada.

Bill Schickling Retires

Bill Schickling, a well-known executive in the library technology industry, has retired as of December 2017. Schickling was the President and CEO of Polaris Library Systems

from May 2003 until the company was acquired by Innovative Interfaces in March 2014. Following the acquisition, he served as Executive Vice President for Innovative Interfaces in multiple capacities, including leading the company's global support operation. Prior to taking the top executive role at Polaris, Schickling led the development of the company's two flagship ILS products—GALAXY, initially released in 1989, and Polaris, which launched in 1997. Schickling shifted from leading product development to executive leadership when Gaylord Brothers was acquired by DEMCO, leaving Gaylord Information Systems as a standalone company. The company was initially renamed GIS Information Systems but shortly began operating as Polaris Library Systems.

Tom Jacobson Returns to Innovative

Tom Jacobson has rejoined Innovative Interfaces as Vice President, Executive Library Advocate and Strategist, effective December 2017. He served as the Director for Strategic Accounts for Innovative from 1990 through 2012 and as Director of Resource Sharing from 2013 to 2014, representing products such as INN-Reach. Following his departure from Innovative, he worked as a sales consultant for OCLC. In November 2015, Jacobson became a principal consultant and co-founder of Third Chapter Partners.

Jason Goodson Joins Equinox

Jason Goodson has joined the Equinox Open Library Initiative as a sales executive. Goodson comes to Equinox from Brodart Company, where he served as national sales manager.

Smart Libraries Q&A

Marshall Breeding responds to questions submitted by readers. Email questions to Sam Imburgia at simburgia@ala.org.

How can we ensure library vendors are following the best security practices? What questions should we ask when looking to utilize their services to ensure their security practices best match our user's needs?

Libraries depend on their computer infrastructure for almost all aspects of their work and the services they offer to their patrons. The threats against that infrastructure seem to continually become more aggressive. Security breaches have many unfortunate consequences, including disruption of library

services, negative impact on the library's reputation, possible exposure of personal data of library patrons or personnel, as well as financial costs related to responding to the event.

Since libraries largely depend on technology products provided by vendors, it is essential to understand and evaluate their security practices. In my experience, vendors generally do a good job in implementing their products securely. These vendors have a great deal at stake since any systematic vulnerability could be quite costly to their business, both in responding to incidents and in their ability to successfully market their products.

Good security is a shared responsibility between the vendor that develops a product and the library as it implements and operates it. Technology products must be designed to

protect data and systems using stringent and up-to-date tools, components, and practices. Libraries must also take care in the way that they implement, configure, and operate these systems. Lapses on either side result in vulnerability. Vendors must create products that can be secured, but even well-constructed systems can be subject to attack if the library does not follow good security-related practices.

The balance of responsibility also varies according to how the product is deployed. The vendor assumes much more responsibility for security when it provides hosting services. Those based on multi-tenant platforms place the onus almost entirely on the provider since the library, as the user of the system, in most cases, will have no access to the internal components of the system. Server-based systems hosted by the vendor may enable more access to the operating environment but usually not at the root level. Libraries assume the burden of responsibility for security for the products they acquire as software that they install and manage on servers within their premises. Even in these cases, the strength of the security may depend on the design of the software and tools provided by the vendor. When implementing open source products, the responsibility for security will fall to the library if implementing it on their own, though it is common to depend on service providers for hosting and maintenance, including security-related procedures.

Given these various deployment strategies, some of the issues related to security that a library should consider when evaluating products might include:

- Ensuring that all underlying components of the system are current and receiving periodic security updates. These components would include the operating systems of any servers involved, database management systems, Java or other execution environments or containers, and web services. Libraries should be especially concerned if there are dependencies on outdated components that may not be eligible for current security updates.
- Making sure standard disaster planning and recovery routines are in place. Any operational and configuration data must be backed up frequently, with replicates stored on multiple independent platforms. Ongoing transactions should be captured in such a way that any work performed since the last regular backup can also be recovered.
- All sensitive data should be encrypted when stored internally. In the library context, it isn't necessary to encrypt bibliographic, holdings, or item records, but patron records, circulation records that contain links to borrowers, financial data, passwords used by staff or patrons, or any other sensitive information must be stored securely. Doing so helps ensure that if the system is ever compromised, unauthorized persons cannot gain functional access. Libraries

should expect vendors to disclose what types of data are encrypted and which are stored in readable formats.

- The systems should have reasonable password management functions, requiring strong passwords or pass phrases that cannot easily be defeated. Staff profiles should have role-based authorization, enabling access only to the data needed for each person's job functions.
- All staff and patron interfaces should communicate using encrypted channels. Web-based interfaces must be configured to use https, which provides an end-to-end encrypted communications stream between the user's web browser and the server based on an authoritative digital certificate. It is also important to configure services so that any attempt to access the service through the unencrypted http protocol is automatically redirected to https. Staff clients based on Windows or Java interfaces should likewise be configured to use encrypted communications. These staff clients may not make it apparent to their users whether their communications with the server are encrypted, so it is crucial for the library to require that the vendor disclose the communications protocols used.
- Any system-to-system communications should also be encrypted. Common scenarios include communicating with self-check kiosks or resource sharing systems via SIP2 or NCIP protocols. Many of these implementations of these protocols are not designed for encrypted communications, so additional layers, such as VPN (virtual private network) software should be implemented to ensure secure and private communications.

The internal infrastructure of multi-tenant platforms may not be apparent to the libraries using them. Ex Libris Alma or OCLC's WorldShare Platform, for example, provide web-based interfaces for all staff and patron functionality in such a way that the library is entirely unaware of what operating systems and other components are used internally. This approach is not unlike that for global services, such as Google, Facebook, and Twitter, which also do not expose their users to any aspect of their internal infrastructure. For these platforms, security is addressed at a more functional level, enforced contractually.

- Libraries should ask vendors to provide any security-related national or international certifications they have achieved. Many library vendors work through third-party data centers, which may also have security certifications. These certifications ensure that the providers have implemented the level of equipment and operational procedures to ensure the highest level of security.
- Libraries should ask vendors to disclose any recent security breaches that have taken place in libraries using their prod-

ucts, the cause of the incident, and how systems or operations have been updated to prevent future occurrences.

- It is essential for libraries to operate the latest versions of any software products they use. Libraries frequently operate older versions of their integrated library systems, deferring available upgrades for months or years. Many of these upgrades may include security-related features or

patches and deferring their implementation may extend periods of vulnerability.

The technology-based systems used by libraries have never been more sophisticated, and the threats against systems are pervasive. Defending systems against attacks requires specialized technical expertise.

Appendix

Table 1: Comparison of Research Search and Workflow Tools

	Elsevier	Digital Science	Clarivate
Citation Database	Scopus	Dimensions	Web of Science
Content Indexed	69 million publications from 5,000 publishers; 22,800 journals; 150,000 books	89 million publications; 870 million citations	68 million publications; 33,000 journals; 88,000 books
Analytics	SciVal Plum Analytics PlumX	Altmetric	InSites Essential Science Indicators
Reference Manager	Mendeley		EndNote
Research Information Management System	Pure	Symplectic	
Management System for Journals			ScholarOne
Peer Review Tracking and Recognition			Publons
Research Data Repository		FigShare	
Institutional Article Repository	Bepress		
Scientific Collaborative Network	SSRN		
Media Monitoring of Articles and Research	Newsflo		
Collaborative Writing and Publishing Tool	Hivebench electronic lab notebook	Overleaf	
Decision Support for Science Funding		ÜberResearch	
Ownership	RELX (previously Reed Elsevier. Publicly traded on London Stock Exchange and Amsterdam Stock Exchange)	Holtzbrinck Publishing Group	Baring Private Equity Asia (previously part of Thompson Reuters)



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