Smarter Libraries through Technology: The Library Tech Industry Transforms

By Marshall Breeding

The ongoing consolidation of the library technology industry has been a recurring theme for the past two decades. Recent months have seen the most significant transition of that history, with the largest company in the library technology industry joining forces with one of the major companies in the broader library content and services arena. We are in a phase of the industry where patterns of business transformations and investments previously established may take new turns.

The business environment oriented to libraries can be seen as divided into different sectors or layers. One sector, providing content to libraries and related organizations, and another, providing technology, have previously operated separately for the most part. The past decade saw minor overlap, but the involvement has now become more substantial. The consolidation of ILS companies seems to have gone as far as reasonably possible, leading to other arrangements as companies seek new growth opportunities.

Library Content and Services Industry

One sector of the industry includes a group of very large organizations with involvement in many different business activities, primarily oriented to libraries, though some also may seek customers in other information-oriented sectors. These general library services companies take many different forms with varying areas of focus. Companies in this league might include primary and secondary publishers such as Gale Cengage,

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Sage, Elsevier, Taylor & Francis, Springer, Wiley, Thomson Reuters, EBSCO Information Services, ProQuest, and dozens of smaller organizations. Demco, a large company that offers a large catalog of supplies and services to libraries, has also ventured in to the technology arena with its October 2015 acquisition of Boopsie, known for its mobile platform.

The primary publishers are certainly involved in developing technologies, but mostly for the acquisition and delivery of their own or licensed content. Those such as Elsevier, Gale, Thompson Reuters, and Gale have created or acquired critical content products of interest to libraries and related organizations and have developed technology platforms for the delivery of that content. These platforms are specifically oriented to the delivery of their content and do not necessarily aim to provide general resource management capabilities to libraries nor generalized discovery services.

Smart Libraries Newsletter, and its antecedent *Library Systems Newsletter*, have not routinely covered the content industry. These content products, the companies that provide them, trends, and business developments in this space are well covered by more specialized publications. *Smart Libraries Newsletter* occasionally delves into this sector to cover a major event or technology product of broader interest to libraries.

Elsevier's Scopus database is an interesting exception because it provides discovery to content from many different sources within its scope of content. Scopus includes only a subset of the broad realm of scholarly and professional content of interest to libraries, an important difference relative to the general index-based discovery services such as EBSCO Discovery Service, Summon, Primo, and WorldCat Discovery Service.

I consider ProQuest and EBSCO Information Services to be categorized in both the general library services and library technology industries. EBSCO Information Services and ProQuest each offer major content products, but also offer technology products that provide management and discovery functionality beyond their own content offerings. While the many different announcements related to new content offerings on EBSCOhost or on the ProQuest content platform fall out of this newsletter's scope, developments related to their general index-based discovery services, electronic resource management tools, and resource management systems are well within the focus of coverage.

Library Technology Industry

Companies of the library technologhy industry, while perhaps offering a broad range of products, are characterized by a focus on strategic technology products for libraries. *Smart Libraries Newsletter* specifically covers this industry.

The library technology industry comprises primarily companies that offer resource management products, discovery products, or some narrower niche of library interests. In an earlier phase the industry was oriented toward integrated library systems. Some of those companies that continue in this vein include SirsiDynix, Innovative Interfaces, Ex Libris (prior to its acquisition by ProQuest), The Library Corporation, Auto-Graphics, and Biblionix. Several others are active in the United States, as are dozens internationally. BiblioCommons, while not offering resource management products, has developed a discovery interface for public libraries.

I believe the industry is close to the final phase of like-for-like consolidation.

Consolidation in the library technology industry has been pervasive, primarily through the mergers and acquisitions of direct competitors. There may be little room for further consolidation of that type. This process has formed a handful of large companies, each offering multiple internally developed or acquired products. It seems unlikely that the market—or regulators—would tolerate further mergers. A merger of SirsiDynix and Innovative, for example, seems to me unlikely. While some possibilities remain for larger companies to acquire mid-sized or small companies offering ILS products, not many would be open to acquisition or of high strategic value. I believe the industry is close to the final phase of like-for-like consolidation.

Further consolidation of ILS-oriented companies may push the industry past a threshold of too few choices from the perspective of libraries. In the absence of at least two viable contenders competing within each library niche, libraries may rally behind other strategies or opportunities. For large libraries, the choices already seem sparse. In the past few years, large academic libraries have mostly chosen between two commercial options, Alma from Ex Libris and WorldShare Management Services from OCLC. Intota v2 until now was seen as a promising third option, which has been withdrawn with ProQuest's acquisition of Ex Libris. Innovative's Sierra finds use in many academic libraries, but its recent new sales have been skewed more toward the public library sector. In the public library sector SirsiDynix and Innovative stand as the top competitors for large organizations. A larger slate of providers also joins the fray for mid-sized libraries, including The Library Corporation, Auto-Graphics, and Biblionix.

Open source continues to gain an increasing presence in the library technology industry, but its role has not been especially disruptive. Following an initial spike of interest, open

source ILS products, primarily implemented through commercial support providers, have become a steadily growing routine option. While libraries resonate with the values of open source, factors such as overall value, functionality, and quality of support apply as much as with proprietary offerings.

Koha continues to see steady rates of adoption in the United States, primarily among small to mid-sized libraries, and mostly through specialized support firms such as ByWater Solutions. Interest in Koha internationally, especially among developing nations, has become increasingly widespread. Evergreen, specifically oriented to public library consortia, saw a growth spurt a few years ago, with ongoing steady growth.

The Kuali OLE project continues brewing as a system built for and by large academic libraries. In addition to the original development partners, two additional libraries have signed on in recent weeks: Cornell University and the Texas A&M Library system. Yet, in comparison to the totality of the large academic library sector, Kuali OLE has yet to gain a significant stake. The project may have even more indirect or conceptual impact, giving libraries a glimmer of hope of a competitive open source alternative.

I see the current phase of the industry to be characterized by strategic acquisitions involving companies of differing profiles. The acquisition of Ex Libris by ProQuest is the current prime example. New types of synergies seem more possible in these scenarios. In the academic environment, where both management and discovery of resources is accomplished through technology platforms imbued with knowledge bases and centralized discovery indexes, the union of organizations with strengths in these different areas offers the promise of much more value than yet another ILS company roll-up.

The synergies for technology products oriented to public libraries seem less obvious. In this space key areas of interest include customer engagement, delivery of e-content, flexible inventory control, and resource sharing.

Any other mix-and-match acquisitions can't be predicted. I do not expect future mergers and acquisitions, whether from content-oriented organizations or those with other kinds of involvement of library institutions, to simply match this pattern. Rather, they will explore other synergistic scenarios. Regardless, I do not expect the library technology to remain static in its current form.

There have been earlier and less successful phases of involvement by the content industry in library technology companies. Content-oriented companies Blackwell and Knight-Ridder, owned Carl Corporation during the 1990s, did not bring particular positive impact to the company. Elsevier, one of the major primary publishers, was owned Endeavor Information Systems from April 2000 through November 2006. In retrospect, this was not deemed as that much of a success in that Elsevier, despite its massive resources, did not develop Voyager or other resource management tools aggressively, but focused more on its e-journal delivery platform. Any potential synergies were not realized, at least partially due to the immaturity of the library technology industry at that time relative to the models in play for electronic resource management and discovery.

Update on Ex Libris: Now a ProQuest Company

In one of most significant industry events of recent decades, ProQuest, a major diversified library services company, has completed its acquisition of Ex Libris, the largest provider of technology products and services to academic and research libraries. This newly consolidated company combines the leading technology provider for academic libraries with one of the largest companies in the library services industry, together offering a diverse range of content and technology products. The combination of technology products from Ex Libris and content components from ProQuest is only one factor that strengthens its competitive position and reshapes the balance of power in the industry.

The initial announcement of the acquisition of Ex Libris by ProQuest was made on October 6, 2015. I covered the acquisition in *American Libraries* on that day as well as in the November 2015 issue of *Smart Libraries Newsletter*. At that time the two companies had reached a definitive agreement to proceed with the acquisition, but the deal had not yet closed, pending regulatory approval, financing, and other issues. The transaction closed on December 14, 2015, with public announcements made the following day.

During the interval between the initial announcement and the closure of the agreement, the two companies continued to operate independently, though with some level of preparation for the merger. Following the close, intensive activity has been underway to create a new organizational structure and develop product strategies. Although the messaging following the initial announcement is mostly consistent with the strategies now articulated, additional details and clarifications regarding the new organization and product strategy have emerged.

As noted in the earlier reporting, the new organization will carry the legal name "Ex Libris, A ProQuest Company," will be headed by **Matti Shem Tov**, and will function as one of three operating divisions of ProQuest. The organization will combine the operations of Ex Libris Group and the ProQuest Workflow Solutions. The following individuals form the executive team reporting to Shem Tov:

- **Oren Beit-Arie**, Ex Libris Strategy
- **Bar Veinstein**, Unified Resource Management
- **Shlomi Kringel**, Unified Discovery and Delivery
- **Yair Amsterdam**, Ex Libris Operations, including the Customer Support, Professional Services, and Cloud Services teams
- **Greg Zick**, Research and Development (Seattle office)
- Regional heads: **Eric Hines** (North America), **Ofer Mosseri** (EMEA), and **Ziv BenZvi** (APAC)
- **Jane Burke**, Customer Success
- **Shlomo Sanders**, Ex Libris Technology, including cloud infrastructure and product architecture
- **Hugh Griffiths**, campusM mobile campus services

The new unit will continue its presence in Israel, its US offices in Chicago and Boston, as well as adding the ProQuest development office in Seattle.

ProQuest is jointly owned by Cambridge Information Group and Goldman Sachs. The funding for the acquisition of Ex Libris came primarily from Goldman Sachs, which increased its equity share in the company while remaining in a minority position. The sale closes a chapter in the history of Ex Libris and ends the involvement of Golden Gate Capital. The value of the transaction now concluded has not been stated publicly. Cambridge Information Group will divest one of its non-library companies. Airbus entered into an agreement in December 2015 to acquire the Navtech subsidiary, which offers a variety of products related to airline navigation.

Product Strategy

The consolidation of ProQuest and Ex Libris brings together two families of products from companies that that provided technologies and services oriented to the management and access of academic library collections. Both sets of products were successful, competing directly with differing proportions of market share. The product strategy of the newly combined company aims to retain the existing customers and expanding its position through preserving and strengthening all the products involved. According to Jane Burke, VP for Customer

Success of the newly formed organization, "Preserving customer choice is a principle of the merger." Going forward, development will continue to be dedicated to each patron or staff-facing product, though some internal components will be consolidated.

Ex Libris and ProQuest both previously had developed technology products powered by content components, an approach appreciated by academic and research libraries. For these libraries with extensive involvement in electronic resources, knowledge bases enable acquisition and management at the portfolio level, with detail holdings of content resource provided through a knowledge base that also enables linking to appropriate copies of articles. Discovery services with central indexes populated at the article level provide a single search box addressing print and electronic content. The product strategy that emerged following the merger leverages the relative points of strength of each antecedent organization: Ex Libris in software development, and ProQuest in content-oriented resources. Both companies based their new products on cloud technologies and embraced the provision of open APIs to enable libraries to access data and extend functionality. Both companies had a track record of engaging with customers as development partners with beta products or focus groups.

Complementary Product Strengths

Ex Libris and ProQuest have been longstanding competitors in the academic library arena, each with its own relative strategies and strengths. Ex Libris, with its commercialization of SFX, launched the genre of context sensitive link resolution based on OpenURL. Serials Solutions, later acquired by ProQuest, entered this arena with its 360 Link, which became a leading alternative and earned a reputation of having a superior knowledge base. Many libraries, such as the State University of New York system, switched from SFX to 360 Link largely due to the accuracy and coverage of its knowledge base. ProQuest was first out the gate in index-based discovery with the launch of Summon in 2009. Ex Libris responded by enhancing its well-established Primo discovery interface with the Primo Central index. Prior to the merger, Primo installations were double that of Summon. Ex Libris invested heavily in the creation of a library services platform, initiating development in 2009 and launching Alma in 2012. In June 2011 ProQuest announced its intentions to develop a competing product, later branded Intota, but had not completed the development. It developed a collections analytics tool called Intota Assessment, leveraging that brand. That product was packaged with Summon and new versions of 360 Resource

Manager and 360 Link into an offering called Intota v1, but this was not a comprehensive resource management platform comparable with Alma. The increasing dominance of Alma in academic and research libraries, with more than a 5-year head start in the market, can be seen as a key driver for ProQuest's acquisition of Ex Libris.

The product strategy developed following the merger of these two competing organizations aims to avoid disruption with the products that libraries have purchased and implemented. None of the changes announced require any library to make a change. According to Matti Shem Tov, Kurt Sanford, and other company executives interviewed, the product strategy of the new organization will continue the development trajectory and support for all of the products used in production in libraries.

Intota v2, ProQuest's comprehensive resource management platform, conceived, designed, but not yet delivered or implemented in any library, ranks as the only casualty of the merger. Even Intota will not be an entirely lost effort. Many of its unique workflows, such as in the way it supports demand-driven acquisition, will be incorporated into Alma. The intellectual capital, both from within ProQuest and from the libraries involved as development partners, will be channeled into Alma.

Alma is positioned as the company's strategic resource management platform. Alma has gained tremendous momentum in the academic library sector, selected by around 600 libraries and in production in more than 400 at the time of the acquisition.

Intota v2 had not been implemented by any library and will not see further development. Although some aspects of the vision of Intota differed substantially from Ex Libris Alma, it generally addressed the same space as Alma as a comprehensive resource management platform for library collections, delivered through a web-native, multi-tenant platform. ProQuest had engaged a group of libraries as beta partners for Intota, including the University of Huddersfield, University of Texas at Arlington, Eastern Michigan University, and others. None of these institutions had implemented Intota as a production system. The Intota beta partners have been invited to form an advisory group to help define how unique concepts intended for Intota can be incorporated into Alma.

Intota Assessment, a distinct product that has been acquired and implemented by a substantial number of libraries, will continue to be developed and supported. This product provides a valuable set of analytical tools that help libraries make collection selection and deselection decisions based on a variety of data sources. Intota Assessment will continue to be marketed as a standalone product. Future development will include integration of the Intota Assessment functionality into Alma Analytics.

Intota v1, a product suite that includes Intota Assessment, Summon, and electronic resource management based on 360 Link will continue to be supported.

360 Resource Manager and **360 Link**, used in hundreds of libraries for electronic resource management and link resolution, will continue to be supported and developed.

SFX, the link resolver offered by Ex Libris, will continue to be supported and developed. Alma includes its own integrated link resolution service and knowledge base.

While all implemented products will continue with existing development and support plans, some behind-the-scenes content components will eventually consolidate. Both companies had made investments in knowledge bases of e-resources and central discovery indexes. Combining and consolidating efforts related to these components eliminates some costly redundancies relative to the pre-merged companies while expanding their scope or coverage.

New Knowledge Base

Ex Libris had created a knowledge base to support SFX. This knowledge base was enhanced to support link resolution and other aspects of Alma. ProQuest also had developed a knowledge base for its 360 Suite of electronic resource management and linking products, based on the products of its acquired Serials Solutions business. Creation and maintenance of knowledge bases were a particular strength of Serials Solutions and ProQuest Workflow Solutions. While the Ex Libris created a sound and competitive offering in this category, the ProQuest knowledge base had the reputation as offering more extensive coverage and higher quality data. The ProQuest knowledge base has therefore been designated as the strategic product in this area. It will be enhanced with any complementary content from the Ex Libris knowledge base and will be used to power each relevant product, including Alma, SFX, and 360 Link. Considerable technical work will be performed in the coming months to align the new knowledge base with each product.

Considerable technical and human resources underlie the operation of a knowledge base that represents the body of content of interest to academic and research libraries. The parallel

The ProQuest knowledge base has therefore been designated as the strategic product.

efforts that Ex Libris and ProQuest previously channeled into competitive knowledge bases can be consolidated, providing operational savings and a product that exceeds the coverage of either antecedent project. The transition from multiple knowledge bases into a single consolidated one will not impact the operation of any of the related products, beyond the anticipated outcome of improved coverage and quality.

Two Flagship Discovery Services: One Central Index

ProQuest and Ex Libris offered directly competing index-based discovery services, Summon and Primo. Ex Libris Primo was developed for use with any integrated library system and is positioned as the default public interface for Alma. Summon was the original index-based discovery service and has been implemented by academic and research libraries using many different ILS products. The affinity between Alma and Primo is currently quite strong. Although APIs are exposed in Alma that enable other products to be integrated as its public interface, to date all libraries implementing Alma have done so with Primo.

Both Summon and Primo will continue to be developed and supported. These two products offer quite different interface designs and features. Libraries that have selected one are not likely to want to substitute the other. Primo and Summon both depend on massive central indexes populated with full-text, citations, and other metadata to provide article-level search across the body of content of interest to academic and research libraries. The population of these indexes requires a vast amount of resources. In addition to the technical infrastructure for housing the index, continual ingestion of new content, and quality control mechanisms, the organization creating the index must work out agreements with each of many different content providers. As with the e-resource knowledge bases, the central discovery index will be consolidated in a way that the one created for Summon will also be able to support Primo. The coverage of Summon generally exceeds that currently in Primo Central. Any resources represented in the Primo Central index will be added to the new index. While the index components of both products have similar architectures, considerable technical work will be required for the transition to a consolidated central index. At this early stage, analysis of overlap and coverage of the two respective indexes is still underway. Summon and Primo will both remain intact, with the expectation that the coverage of both products will be enhanced. The interfaces and other features of both discovery products will continue to be developed. Cross-pollination of features across the products is also anticipated.

Consistent with retaining Summon as one of its flagship discovery services, work will commence to enable it to operate with Alma. As noted, to date, all libraries implementing Alma have done so with Primo as its patron-facing interface and discovery service. Although APIs are present in Alma to make it possible to use it in conjunction with other discovery services, product packaging, pricing, and support options have resulted in libraries opting for using Primo. Libraries that have previously licensed another discovery service have moved to Primo when they implement Alma. Beginning in late 2016, libraries using Summon will be able to implement Alma without needing to change to Primo.

The new company also expands its portfolio of products oriented to the broader campus beyond the library. Ex Libris had acquired the campusM mobile platform from oMbiel in April 2015, developed the Leganto reading list product, and ProQuest had acquired SIPX. While each of these products has synergies with library collections and services, each may be administered and operated by campus personnel outside the library organization.

Competitive Position

Prior to its acquisition, Ex Libris held the leading position in the academic library sector. Especially among large libraries and consortia, sales of Alma showed great momentum. ProQuest held a smaller but substantial market share in most product categories.

Prior to the merger, each win for Alma in a library that had implemented Summon or any of the 360 suite of products meant a loss for ProQuest. Given the market momentum of Alma and the current count of around 50 libraries selecting Alma that have implemented Summon, the acquisition of Ex Libris can also be seen as a defensive move.

Some libraries using the ProQuest 360 Resource Manager and 360 Link that may have been anticipating a future migration to Intota, will now be encouraged to consider Alma instead. Naturally, some may opt for other alternatives. To the degree that the new company is able to retain the loyalties built by Serials Solutions and ProQuest, however, Alma may see a new wave of growth. ProQuest customers who appreciated the Summon discovery service, the superiority of the knowledge base underlying its electronic resource management products, and the vision of Intota, may be enticed to

adopt Alma as those components become part of its offering.

Other competitors in the academic library sector will also face even more formidable competition against the strengthened offerings of Ex Libris, A ProQuest Company, following the execution of this product strategy. Adoption of WorldShare Management Services from OCLC trails that of Alma and skews toward institutions of more modest size and complexity, though with some notable exceptions. Three members of the Association of Research Libraries have implemented WorldShare Management Services, including the University of Delaware, the University of Louisville,

and the University of New Mexico as part of the LIBROS consortium.

A different set of dynamics apply to EBSCO Information Services, a diversified library services company with similarities to ProQuest, but much larger. EBSCO has not ventured into the library services platform arena. Rather, it has pursued a strategy to integrate its market-leading EBSCO Discovery Service with all of the major integrated library systems. EBSCO has lent support to the open source movement, providing a grant to the Koha project (February 2015) and joined the Kuali Foundation (June 2013).

Third Chapter Partners Launched

Three former executives of the library technology industry have formed a new consultancy called **Third Chapter Partners** (http://www.thirdchapter.com/) to offer a variety of technology-oriented services for libraries and related organizations. Each partner comes with extensive experience gained from working with libraries from the library vendor arena, each with a somewhat different background and area of focus. Partners include **Gene Shimshock**, formerly Vice President Global Marketing at Innovative Interfaces, **Ted Fons** formerly Executive Director for Data Services for OCLC

and Director of Customer Services at Innovative Interfaces, and **Tom Jacobson** who held a variety of roles in his 24 years with Innovative.

The consolidation and transformation of the library technology industry in recent years has led to considerable turnover at all levels in many companies, leading to displacement of experienced individuals. While the formation of a new small consulting firm may be a small event relative to those that make headlines, it is representative of the churn of talent that comes with these industry changes.

Questions or suggestions for topics in future issues?

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