Smart Libraries Newsletter

News and Analysis in Library Technology Developments

Smarter Libraries through Technology

Consolidation and Concentration

By Marshall Breeding

Consolidation has been a prevailing trend among organizations that provide products and services to libraries—including both commercial and non-profits—since about the late-1990s. This newsletter and its predecessor *Library Systems Newsletter* have chronicled a constant succession of events that have transformed the industry from a large array of smaller organizations to a more consolidated landscape. These business acquisitions, often positioned under the more neutral sounding label of "merger," have formed some dominant powerhouse companies as well as some mid-sized organizations.

A variety of factors drive industry consolidation. An important element involves financial efficiency. Separate companies replicate considerable administrative and operational overhead. Combining enables these companies to function under a single executive management structure as well as marketing, sales, support, and product development. Such consolidation does not necessarily mean that the products of the acquired company will be eliminated. Quite the contrary, the short-term elimination of products in business consolidation in the library technology has been rare. Instead, consolidated companies usually work toward a new next-generation product that eventually will replace both internally developed and acquired systems. Consolidation to gain financial efficiency is often implemented as a business strategy of external investors.

The need to fill gaps in a company's product portfolio can also lead to business acquisitions. Many of the larger companies work toward creating a portfolio of products able to serve the diverse needs of its current or potential customers. The need to address any given area of interest can be met either through internal development or by acquiring a company or product. In some cases, the company will build; in other cases, it will buy. These events provide an opportunity for startups and other small companies that have created an interesting product but may not have the resources to market it to a broad audience or to take on future rounds of development.

Companies also make acquisitions to gain more control. Large companies often work through distributors to represent their interests in some geographic regions. These distributors have connections and expertise in the local language and business environment and often operate independently from the company whose products they represent. The primary vendor may eventually opt to operate directly in that area rather than through a distributor, leveraging its own product expertise and sales force. The relative income associated with commissions or licensing fees associated with the distribution model versus the expense and investment involved with operating a local office may also come into play. Examples of these type of business transition include the regional distributors that Ex Libris has acquired in Italy, Scandinavia, and Latin America. In each of these cases, Ex Libris opened its own office in the region and hired many of the employees formerly affiliated with the distributor. An example from an early phase of the industry can be seen in OCLC's strategy to centralize its billing and support for its

products and services rather than continue to work through its affiliate networks. Another example can be seen in the acquisition of Stacks by EBSCO Information Services described in this issue of *Smart Libraries Newsletter*. Stacks had previously been a close partner in the development of a product of interest to EBSCO. By acquiring Stacks, EBSCO gains more control of a product it considers strategically important and can direct its sales force to give it its full attention.

Almost all the organizations involved in the library technology industry today have come into their current form following the absorption of antecedent companies,[1] including

- SirsiDynix: Sirsi Corporation, Dynix Systems, EOS International, DRA, MultiLIS, NOTIS Systems, IME, INLEX, and others.
- Innovative Interfaces: Polaris Library systems and VTLS.
- OCLC: PICA, Fretwell-Downing Informatics, SISIS Information Systems, Amlib, BOND GmbH, HKA, and, Relais International.
- ProQuest: Ex Libris, Endeavor Information Systems, Dabis, Serials Solutions, MediaLab Solutions, and SIPX.
- Follett: Sagebrush, Winnebago Software Company, Nichols Advanced Technologies, and X2 Development Corporation (Aspen student information system).
- Infor Library Systems: Geac, CLSI, Stowe Computing,

and ODIS NV.
- The Library Corporation: Carl Corporation.
- Auto-Graphics: Maxcess Library Systems and LIBerator Information Services.
- Lucidea: SydneyPLUS, Cuadra Associates, and Inmagic.
- Axiell: BTJ Systems, CSC Consulting Group, ADLIB Information Systems, DS Limited, Bibits, and others.

Non-profits are not exempt from the pressure to consolidate. Some of the technology-related acquisitions of OCLC are listed above. OCLC has also absorbed non-profit service organizations, such as WLN and the Research Libraries Group. LYRASIS was formed through the consolidation of many of the former OCLC network affiliates, including SOLINET, NELINET, and PALINET.

This issue of *Smart Libraries Newsletter* features three new events reflecting this trend of consolidation. Axiell continues its expansion through its recent acquisition of Bibits, with a large presence in Norway and other Scandinavian countries. EBSCO Information Services has acquired Stacks, a small company with which it partnered to create a library website portal product. On the non-profit side, NFAIS will be merged into NISO, the standards organization most relevant to libraries and their technology vendors.

EBSCO Acquires Stacks

EBSCO Information Services has acquired Stacks, a company that has developed a specialized web portal for libraries. Stacks has worked with EBSCO as a partner in the development of Stacks since 2016 and has served as its exclusive channel for sales and support. This move advances the arrangement from partnership to full ownership. The launch of Stacks as a new product was featured in the November 2016 issue of *Smart Libraries Newsletter.*

The Stacks service provides a fully managed, mobile friendly website for a library. It has been developed as a hosted service, avoiding the need for the library to operate its own web server. Stacks simplifies the management of a library website, providing an easy way to populate content without the need to maintain the technical platform or to have detailed knowledge of HTML, CSS, JavaScript coding, or known programming languages. Stacks implements a responsive web design, enabling use by small screen devices, such as smartphones and tablets, as well as full-sized laptop or desktop computers.

The service includes support for all the major components that comprise a typical library website, including integrated discovery, event scheduling, book carousels, display of hours, address, and contact data, integration of social media content, and presentation of any resource or featured content. Stacks is designed to accommodate the needs of almost any type of library. It has been implemented by multiple types of libraries, including academic, public, school, government agency, health sciences, and corporate.

Unlike many other products deployed via software-as-a-service, a website managed by Stacks is accessed via the library's own domain. The URL would take a form such as https://library.mysinstitution.edu instead of https://library-name.vendorname.com.

Stacks gives search or discovery a prominent placement, both visually and strategically. The platform includes APIs and other techniques for interoperability with the library's integrated library system (ILS) and discovery services. Stacks

is able to incorporate all aspects of an online catalog, including patron sign-in and account features into its own interface.

While Stacks has been optimized to integrate with EBSCO Discovery Service, it also supports other discovery arrangements. It can also provide a search box that invokes the library's native online catalog. A review of the existing Stacks implementations reveals multiple scenarios. For many, the search facility directly invokes EBSCO Discovery Service. Others point to another discovery interface, such as SirsiDynix Enterprise, which in turn uses the EDS API to provide access to article-level resources. At least some of the library implementations channel search only to the local online catalog of the ILS with no presence of EBSCO Discovery Service. No examples were found using other index-based discovery services, such as Primo, Summon, or WorldCat Discovery Service, to power the search component of a Stacks implementation. The association between Stacks and EBSCO Discovery Service is not due to technical limitations but related to the organizational affinities. Libraries already engaged with EBSCO are more likely to be open to additional products and services offered though its partners or subsidiaries.

The acquisition of Stacks by EBSCO Information Services puts Stacks directly into its product portfolio. Although EBSCO had already been promoting Stacks, the product will now receive expanded exposure and opportunities through active marketing by the global and massive EBSCO sales force. Although the initial development of Stacks transpired externally, it was designed and developed in partnership with EBSCO.

The co-founders of Stacks will assume senior positions within EBSCO Information Services. Kristin Delwo joins EBSCO as Vice President, SaaS Product and Technology Innovation. Chad Arron Smith takes the role of Vice President, SaaS Technology and Emerging Trends.

Axiell Acquires Bibliotekenes IT-senter

Axiell, a major provider of technologies to libraries, museums, and archives, has acquired Bibliotekenes IT-senter, more commonly known as Bibits, expanding its presence in Norway, Sweden, and Finland. This acquisition brings two important products into the Axiell product portfolio, the Micromarc ILS dominant in Norway, and Saga, a library web portal. This move represents a significant expansion of Axiell's library business and brings in a new set of customer libraries with potential interest in its flagship Quria library services platform.

The acquisition of Bibits continues the ongoing expansion of Axiell, which has grown to be one of the largest companies in the global industry offering technology products and services to libraries, museums, and archives as well as a major distributor of digital content in Scandinavia. Axiell has grown both organically by developing and selling products developed internally as well as through a succession of business acquisitions. While Axiell ranks as one of the largest companies in the global industry, it has only a small presence in the North American library technology arena. Its museum and archive products have a stronger presence in the United States and Canada. The acquisition of Bibits strengthens Axiell position in Scandinavia, giving it a large customer base in Norway, a country in which it previously had a smaller presence. Acquiring Bibits also helps make some of the ground Axiell lost when the public and school libraries in Denmark implemented a nationwide system, displacing Axiell's DDElibra, which had previously been used in the majority of Danish public libraries.[2]

This acquisition falls within the context of Axiell's ongoing expansion by acquisition as well as its broad strategy to build a customer base ready Quria, its new library services platform for public libraries. The company has been working in recent years to consolidate its many country-specific ILS products into a fewer number of systems, especially BOOK-IT and Axiell Aurora. Axiell has completed the initial release of Quria, which is now in its early implementation phase. In the longer term, Quria seems positioned as the strategic library automation product for the company that will be marketed to new prospects and will be the eventual migration path for its existing customer libraries.

Details of the Acquisition

Financial details of the acquisition of Bibits were not publicly announced by Axiell. The products of Bibits will continue to be supported and will become part of Axiell Libraries and Education. The company employed about 50 personnel that have joined Axiell. At the time of its acquisition, the company was led by Kjetil Hillestad as its Managing Director.

Bibits Company Background

Bibits has a complex corporate history, involving multiple public and private entities. The company was founded in 1988 under the name Norsk Systemutvikling AS with Micromarc as its primary product. In 2001, Norsk Systemutvikling merged with Biblioteksentralens IT in 2001 and began operating as Bibliotekenes IT-senter AS.

Bibits corporate structure included three subsidiaries, one for each of the major countries in which it operates. These include

- **Bibliotekscentrum Sverige AB**, distributing Micromarc to libraries in Sweden.
- **Open Library Solutions AB**, its subsidiary based in Sweden that develops the CS Library Saga web portal.
- **Open Library Solutions Finland Oy** launched in 2012 to distribute and support Micromarc and CS Library Saga to libraries in Finland.

Prior to its acquisition by Axiell, Bibliotekenes IT-senter AS was owned by Biblioteksentralen, a joint venture of the municipal and country governments, and the Norwegian Library Association. Forlagsentralen, which was previously a joint owner of Bibliotekenes IT-senter AS, was purchased by Biblioteksentralen in 2014. The company was also a member of Bibliotekenes Hus, a consortium of four companies providing products and services to libraries:

- **Biblioteksentralen**: a supplier of books
- **Norsk Bibliotektransport**, providing logistics services for materials to Norwegian libraries
- **BS Undervisning**, providing school books and teaching aids for primary and secondary schools
- **BS Eurobib**, providing furnishings for library spaces, schools, and museums
- **Bibliotekenes IT-senter AS** (formerly): technology products including Micromarc and Saga

Micromarc

Micromarc was initially developed in 1987. Currently, Bibits states that there are over 2,000 installations of Micromarc, serving over 250 municipal library systems and over 1,400 school and special libraries. Though Micromarc is an aging ILS, it has been consistently enhanced and is on its third major version.

The main competitor to Micromarc in Norway is the Bibliofil ILS, produced by Bibliotek Systemer. This product was originally developed in 1982 by the Larvik Public Library in Norway, leading to the establishment of Bibliotek-Systemer AS

in 1988 to continue development and support for the software.

Saga: A Web Portal for Public Libraries

Bibits also offers Saga, a specialized web portal for libraries with integrated search that serves as a comprehensive website for a library. Saga enables library to create sophisticated websites without the need to work directly with technical languages and components. Libraries can add content to their Saga-based website using defined templates and tools. The product is localized in multiple languages, including English, Swedish, Finnish, and Norwegian. Its features include an event scheduler and a tool for easily displaying each library's opening hours. The product is based on a mobile-first responsive design that scales to accommodate the screen size of any user device. Saga falls in the same product genre as Axiell arena, that of a full-featured web portal for libraries.

Saga is the primary product of Open Library Solutions, founded in 2012 as a spin-off of Bibits, which is part of the organization now acquired by Axiell. The current Saga portal technology is based on an earlier product CS Library, originally created by Teknikhuset AB, a Swedish software development firm. CS Library was launched in 2007, in collaboration with the Stockholm Public Library and the Umeå City Library. Since 2012, CS Library has been a product of Open Library Solutions and was redeveloped and rebranded in 2016 as Saga CS Library, or simply Saga.

In May 2011, Bibits entered an agreement with Open Library Solutions to distribute CS Library in Norway. Since about 2010, Teknikhuset had begun its own efforts to market the product to Norwegian libraries. Teknikhuset Holdings and Bibliotekenes IT-Senter AS created Open Library Solutions AB as a new company in May 2015. This new company became the owner of CS Library and responsible for its ongoing development and support.

Saga is based on a framework Open Library Access (OLA), which enables it to interoperate with multiple external systems. The product is currently integrated with several of the major automation products used in Scandinavia, including Micromarc, BOOK-IT, and Gemini. It also enables interoperability with digital content providers and sources of cover images.

Bibits offered a package branded as Micromark+ that included the Micromarc ILS, the Saga web portal, and BibControl reporting and analytics application.

Axiell Company Background

Axiell has become established as one of the larger global providers of technology products and services to libraries and

other cultural institutions and is active in multiple global regions. The company does not currently offer a library management system to libraries in the United States, though its archive and museum products are used in North America.

While the broader company offers products and services for diverse organizations, Axiell Public Library and Education division provides specialized automation products for public and school libraries. Consistent with the reality that each type of library has its distinctive technology requirements, Axiell does not have substantial involvement with academic and research libraries.

Axiell is the largest company in the industry specializing in public and school libraries, with more employees and revenue than competitors, such as The Library Corporation, Infor, Biblionix, Baratz, Capita, and Auto-Graphics. Axiell is smaller than the global diversified giants with broad product lines, such as Follett, EBSCO, ProQuest or library technology companies with products for all types of libraries like SirsiDynix and Innovative Interfaces. Axiell continues to extend its reach beyond its original base in Scandinavia to other countries in Europe and beyond.

Axiell has a complex organizational structure, with divisions established for each of its product areas as well as operating entities or offices for each of the many countries in which it does business. The company operates three major business divisions,

- **Public Library and Education**, offering a variety of ILSs developed and implemented each for specific countries, the Arena library portal, as well as Quria, the company's newly developed library services platform for public libraries. This division of Axiell focuses on technology products and services for public libraries and schools.
- **Archives, Libraries and Museums**, providing resource management and discovery products to archives, museums, and special libraries. The products offered by this division include ADLIB, with its specialized versions for museums, archives and libraries, eMu for managing museum collections, and Mobydoc, a museum management system widely used in France.
- **Axiell Media**, providing ebooks and other digital content to libraries and retailers in Scandinavia. This business is based on the Elib platform.
- **Axiell Services**, providing outsourcing services for libraries. This division currently operates three libraries in Nacka, Sweden.

Axiell is privately owned. Mats Hentzel is the Chairman of its board of directors and Joel Sommerfeldt leads Axiell Group as its Chief Executive Officer.

Company History

The company traces its origins to Axiell Biblioteksystem AB founded in 1985, with BIBS as a library management system that became one of the dominant products in public libraries in Sweden. A complex series of mergers and acquisitions began in 2001, which consolidated the major companies and library automation products used in Finland, Denmark, and Sweden, culminating in the formation of Axiell Group in 2008.

Lyrasis and DuraSpace to Merge

Lyrasis, a major non-profit library services organization, and DuraSpace, the non-profit organizational home for open source repository platforms DSpace and Fedora as well as the VIVO collaborative research profile platform intend to merge.

Though positioned as a merger, the transition will consist of DuraSpace becoming part of Lyrasis. Lyrasis is a much larger organization with total income of just under $79 million in 2018. DuraSpace reported total income for 2017 as $1.7 million (2016 = $2.2million; 2015 = 1.9 million; 2014 = 1.6 million). Lyrasis will establish a new division that incorporates open source projects associated with DuraSpace (DSpace, Fedora, and VIVO) and those for which it was already responsible (ArchivesSpace, CollectionSpace, SimplyE public and SimplyE academic).

Lyrasis will take responsibility for DuraSpace's hosting services, including DuraCloud, DSpaceDirect, and ArchivesDirect. This part of the organization will be called the DuraSpace Community Supported Programs Division.

Lyrasis has an established track record for the governance of open source projects. The organization has received multiple grants from the Andrew W. Mellon Foundation to develop capacity for open source support:

- 2009: $192,000 for development of internal expertise and institutional planning.
- 2011: $486,000 to launch Lyrasis Technology Service program.

- 2012: $670,000 for the creation of resources and programs for open source decision support. This year Lyrasis became the organizational home for ArchivesSpace, a project that had been previously funded by the Mellon Foundation.
- 2014: $1.5 million for support related to becoming the institutional home for CollectionSpace, another Mellon-funded project.

The current merger planning follows a prior effort to bring the organizations together that ultimately did not come to fruition. In January 2016, the boards of the respective organizations announced an intent to merge, contingent on additional diligence assessment, member input, and final board approval. The planned merger was featured in the March 2016 issue of *Smart Libraries Newsletter*. In May 2016, the organizations announced that the planned merger would not go forward. In the three years that have transpired, the two organizations have continued to collaborate and have concluded that merging will serve the best interests of the two organizations.

NFAIS to Merge into NISO

The two major non-profit organizations involved with the broader library and information science community will merge. NFAIS (National Federation of Advanced Information Services) will become part of NISO (National Information Standards Organization). Discussions regarding the possibility of NFAIS and NISO joining forces beginning in the summer of 2018 have progressed and culminated in a decision to go forward, and ultimately in approval by the organizations' respective boards. The merger, still contingent on approval by the NFAIS membership, was announced in February 2019.

NISO (https://niso.org), with its office in Baltimore MD, is the primary standards organization for libraries and related organizations in the United States and is the representative organization for international standards. Some of the key stakeholders in NISO initiatives include libraries, educational institutions, publishers, content aggregators, and organizations developing technology products for these communities.

NFAIS is a non-profit trade association representing organizations in the global information community that publish and aggregate scholarly content. Its members include for-profit commercial vendors, non-profits, and governmental organizations. The organization sponsors an annual conference, convenes webinars and other educational programs, bestows industry awards, and engages in advocacy on behalf of its membership.

Todd Carpenter, Executive Director of NISO, will continue to lead the organization as it assumes responsibility for NFAIS activities.

Smart Libraries Q&A

Each issue, Marshall Breeding responds to questions submitted by readers. Have a question that you want answered? Email it to Samantha Imburgia, Associate Editor for ALA TechSource, at simburgia@ala.org.

How do you think the internet of things will impact libraries in the future?

The internet of things (IOT) has made a massive impact on the general consumer and business realms. The "smart home" movement is in full swing. High-speed internet access and in-home Wi-Fi are almost ubiquitous among all but the most modest income demographics. A recent Forbes article states that over 50 million homes in the US now have either an Amazon Eco or Google Home smart speaker.[3] Any television of recent vintage can integrate with smart home systems and can respond to voice commands. We increasingly rely on video cameras, baby monitors, and other home surveillance technologies for additional security and convenience. Thermostats, lighting, and other appliances are routine parts of our programmable home networks. Commercial and industrial settings likewise take advantage of specialized, network-connected devices for automation, efficiency, and for data collection and analytics. Smartphones likewise become part of these smart networks, often serving as the controller for other devices, even when outside of the home. Each of these

devices operates though an IP address and is part of the IOT.

The IOT provides many benefits, but it also comes with significant concerns. These devices can intrude on privacy, collecting and transmitting data regarding our personal movements and private conversations. We naturally make trade-offs between convenience and wanted features versus a certain level of provision of personal data. The terms of service or privacy policy of each device will detail what personal data is collected, stored, or shared. These policies are rarely read, and it is technically difficult to verify that the behavior of the devices is compliant.

The security of these devices can also be problematic. Any internet-connected device must operate with fully secured hardware and software to prevent unwanted or malicious use. Many IOT devices include computer processors and operating systems that may be subject to security flaws. Desktop or laptop computers, tablets, and smartphones are usually programmed to regularly update their software to fix security bugs and implement new features. Unfortunately, many other internet-connected devices may not have easy ways to fix security flaws and may operate indefinitely on the versions of the firmware and software installed at the factory.

Libraries today make use of technologies considered part of the IOT, and I would anticipate increased interest in the future. Physical facilities continue to be a vital part of libraries that can benefit from many different types of technologies to enhance their effectiveness and enrich the experience of their visitors. Some examples include

- Beacon technology to enable messaging between a visitor's smartphone and specific spots in the building. These devices could provide enhanced information or references related to exhibits, collection areas, makerspace equipment, or other points of interest.
- People-counting technologies can help a library monitor the number of visitors in each section of the library and patterns of movement to help optimize the physical layout of the space and the placement of service points or collection materials.
- Products are already available that package multiple technologies to enable unstaffed library facilities to provide after-hours access or even 24-hour unattended access. Devices would include door security that can be opened with a valid library card, surveillance cameras and other devices to ensure the security of patrons and of the facility, and self-service equipment.
- I can also imagine future libraries going beyond the current capabilities of RFID tagging and equipment to create new ways of helping library patrons easily find and access physical library materials. Would it be possible, for example, for each item to be its own internet device that could be integrated into shelving maps or retrieval services? Such technology would need to be very carefully controlled to preserve the privacy of patrons relative to their use of library materials. While it would be helpful to track materials at a very granular level in some situations, it would be catastrophic for privacy if it were used to reveal what materials a patron consulted in the library or borrowed.

The IOT today is a growing part of the technology infrastructure that surrounds daily life. These technologies will undoubtedly find new applications in libraries with the potential to make a positive impact on the services we offer. But it will be essential for libraries to work through all the issues of privacy and security as they implement these devices. In our homes, we can make personal decisions regarding the trade-offs between wanted features and erosion of privacy. In the library context, patron privacy is a strategic priority and these devices must be implemented only when they can be verified to comply with stated patron privacy policies.

Notes

1. See https://librarytechnology.org/mergers/ for a visual representation of the consolidation of the library technology industry.
2. See Marshall Breeding, "Cicero: A New System Designed for Shared Library Management," *Smart Libraries Newsletter* 38, no. 6 (June 2018): 2-5.
3. John Koetsier, "Amazon Echo, Google Home Installed Base Hits 50 Million; Apple Has 6% Market Share, Report Says," *Forbes*, August 2, 2018, https://www.forbes.com/sites/johnkoetsier/2018/08/02/amazon-echo-google-home-installed-base-hits-50-million-apple-has-6-market-share-report-says/.

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