Smarter Libraries through Technology: Shared Systems Maximize Cooperation

By Marshall Breeding

In the July issue of *Smart Libraries Newsletter*, we looked at technologies that enabled groups of libraries to collaborate where each has implemented a separate integrated library system. Direct consortial borrowing products such as Auto-Graphics SHAREit, Innovative's INN-Reach, or Relais ILL from Relais International, provide functionality that operates through exchanging data and transactions through each library's existing automation system. Another approach, which is gaining increasing popularity, relies on libraries not deploying independent automation systems, but rather sharing an instance of a single system.

Shared technology infrastructure has the potential to enable a deeper collaboration among libraries than possible through add-on resource sharing systems. One of the major trends in library technology is the interest in library services platforms shared by groups of libraries, rather than each institution implementing its own independent system. This model of shared technical infrastructure provides a variety of benefits, primarily in strategic cooperation, lower costs, and in access to expanded resources for library users.

Sharing an automation system among large numbers libraries falls well within the capacity of many of the products available today. Those deployed through multi-tenant platforms, for example, are built using technologies and architectures similar to those that power popular consumer services serving extraordinarily large numbers of institutions or individuals. The hardware and software limitations used as the basis for many of the configurations of existing implementations no longer apply. Libraries can consider much more expansive options going forward.

Simply by purchasing a system together, libraries gain financial leverage relative to each institution's selecting and negotiating independently. Even with little anticipated operational coordination, groups of libraries are likely be offered attractive group pricing to purchase a system through a joint contract. Libraries participating in a joint contract might also be able to benefit from shared training events and expertise because they all would be using the same system.

Even more than cost savings in purchasing the system, libraries participating in these projects can opt to shift to group-oriented workflows to lower operational costs. Some projects might involve collaborative approaches to acquiring and processing collection materials. Patron-oriented discovery and cross-institutional resource sharing can help to increase the impact of the individual and collective collections.

A limited amount of savings and efficiencies can be achieved through

joint purchase agreements or add-on resource sharing systems. Deep collaboration requires a strategic commitment. Participating libraries change at least some operations to gain advantages collectively. Examples include agreeing to a single set of policies and procedures along with centralized management, selective simplification of policies, or redistribution of activities. Implementing a shared technology environment can be a key factor in strategic collaboration.

The groups selecting shared technology infrastructure include both consortia of independently governed libraries and systems of libraries operating under the same higher-level organizational structure. Examples of systems might include a state university system composed of multiple campuses, each of which might have multiple libraries or state-wide public library projects. Consortial implementations tend to be complex. Independent governance of the participating institutions may bring a need to emphasize the branding and policies of each local institution, to segregate patron or financial data, or other functional characteristics. Although some degree of institutional independence must be maintained within these shared systems, maximizing collaboration stands out as the overarching principle.

Shared technology infrastructure enables organizations to collaborate in multiple areas. Some may engage in collaborative collection development. in the context of aggregate collections, sharing a bibliographic database and acquisitions processes makes the selection and acquisitions of new materials or subscriptions to electronic resources easier. Although libraries can also work toward collaborative collection development when they have separate automation systems, the effort to search each system separately can make the process unwieldy. Shared systems can also more easily produce reports or analytics to help selectors make more informed decisions their own institutional collection in relation that of the consortia.

Shared infrastructure provides options for the distribution of activities among the personnel of the organization.

Individuals with specialized expertise may be able to apply their work more broadly throughout the consortium. Catalogers with knowledge in a given language, for example, may not be fully tapped by the work within their home institution and may be able to handle materials acquired for other institutions within the partnership. A consortium sharing an automation system also has more options technical services functions. It may choose to use centralized cataloging or acquisitions or multiple processing centers instead of the traditional arrangement where each institution exclusively handles their materials.

The move toward large consortial projects alters the competitive dynamics of the library technology industry. These projects often result in a "winner-take-all" gambit, where incumbent installations spanning many different products or vendors are replaced by a single new provider. A significant amount of business can be won or lost in a single procurement.

As these large-scale projects become more frequent, vendors with the capacity to develop sophisticated products oriented to consortial implementations through highly scaleable platforms gain an advantage relative to those oriented to single-institutional implementations. Groups of libraries seeking platforms for shared infrastructure make their evaluations based on their relative abilities share resources among their collective user populations and to gain efficiencies in managing both print and electronic collections.

This issue of *Smart Libraries Newsletter* surveys some of the recent projects where libraries have opted for some level of shared infrastructure. These projects reflect a distinct trend that is likely to expand in the coming years according to the perceived success of these projects. Some high-profile implementations have already sparked interest. While the majority of institutions will likely continue to implement automation systems individually, projects involving shared infrastructure are an option that libraries interested in strategic partnerships will choose with increasing confidence.

Shared Infrastructure Projects Gain Momentum

Recent months have seen a number of announcements of large consortia or library systems that have chosen to implement library services platforms in a shared configuration. Ex Libris Alma has emerged as the leading product in this sector, with Innovative's Sierra, OCLC WorldShare Management Services and ProQuest Intota also represented.

Ex Libris Takes the Lead for Academic Library Consortia and Large University Systems

Capitalizing on its investments in the creation of Primo and Alma as specialized discovery and resource management

services for large academic and research libraries, Ex Libris has seen a string of recent successes. Several large academic consortia as well as statewide or national university systems have selected its products.

The Orbis Cascade Alliance stands as one of the early examples of academic libraries implementing a shared library services platform. The Alliance—composed of 37 college and university libraries in Washington, Oregon, and Idaho—selected Ex Libris Alma and Primo in October 2012 and completed its implementation in January of 2015. Prior to the implementation of Alma, each of the participating institutions operated individual ILS implementations. Most resource sharing was initially accomplished using Innovative's INN-Reach product, which provided a union catalog, including the holdings of all the participating institutions, and functionality for requests and fulfillment for consortial borrowing. The majority of the libraries had implemented Innovative's Millennium ILS. The libraries of the Orbis Cascade Alliance have collections totaling more than 9 million titles and 28 million volumes. Total enrollment numbers some 258,000 students. The Orbis Cascade Alliance stood as a high profile project that was closely watched by other groups of libraries interested in strategic cooperation based on sharing a library services platform.

Libraries interested in strategic partnerships will choose shared infrastructure with increasing confidence.

California State University System

Following an extensive procurement process, California State University announced in June 2015 that it selected Ex Libris Alma as the basis of the shared infrastructure to manage the print and electronic resources of the libraries of its 23 campuses. Primo will be implemented as the discovery service. These CSU libraries have previously maintained their own ILS implementations. Alma will replace a variety of incumbent systems, including Millennium (11 campuses), Sierra (6), and Voyager (4). Two campuses had previously selected Alma. Previous link resolvers, including both Ex Libris SFX and ProQuest 360 Link, will also migrate to services provided within Alma. Campuses that had implemented Summon for discovery will transition to Primo.

The libraries of the California State University system represent an incredibly ambitious project. Aggregate collections total more than 21 million titles and 25 million volumes. The CSU system ranks as the largest enrollment in the United States, exceeding 460,000 students. The campuses employ more than 47,000 faculty and staff members. The table (page 4) describes some of the characteristics of the CSU campus libraries and their aggregate totals.

University of Georgia System

The University System of Georgia has a long tradition of shared automation among its libraries, through a program known as GALILEO Interconnected Libraries. GALILEO, conceived in 1994, includes not only a shared automation system, but access to a variety of information resources. In 1998 GALILEO signed a contract with Endeavor Information Systems to implement its Voyager ILS. Endeavor was acquired by Ex Libris in November 2006.

The libraries of the 31 institutions of the University of Georgia System have combined collections totaling more than 7 million bibliographic records with holdings exceeding 17 million volumes. Major research libraries in the system include Georgia Institute of Technology, The University of Georgia, Georgia State University, and Georgia Regents University.

GALILEO Interconnected Libraries announced in July 2015 that it has selected Ex Libris Alma as its next shared resource management environment and Primo as its discovery

service. Many of the GIL institutions currently use EBSCO Discovery Service.

This project will also include support for the EmTech Library Service Center, a high-density remote storage facility served by Emory University and Georgia Tech. This facility is expected to be completed in the fall of 2015. Emory University selected Alma in 2013.

Wales Higher Education Libraries Forum

The Wales Higher Education Libraries Forum (WHELF), composed of the major university libraries in the country of Wales, selected Ex Libris Alma and Primo as its shared technology environment following an extensive tender process. The announcement of the selection was made in December 2014. In addition to the academic libraries, WHELF includes the group of libraries associated with the Welsh National Health Service. Alma replaces an assortment of incumbent ILS products, Voyager, Sierra, SirsiDynix Symphony, Horizon, Virtua, and Capita Alto. (See page 5 chart.)

California State University Libraries

Institution	Incumbent ILS	Titles	Volumes	Circulation
Bakersfield	Voyager	473,134	637,606	15,714
Channel Islands	Voyager	100,433	255,594	
Chico	Sierra	850,000	1,265,907	32,182
Dominguez Hills	Millennium	628,193	637,064	8,456
East Bay	Millennium	944,415	1,139,057	33,491
Fresno	Millennium	1,928,624	1,345,398	208,491
Fullerton	Millennium	1,153,714	1,256,867	61,486
Humboldt	Voyager	692,017	807,101	30,300
Long Beach	Sierra	1,198,788	3,073,252	147,461
Los Angeles	Millennium	926,498	983,229	35,665
Maritime Academy	Millennium	42,854	154,820	5,439
Monterey Bay	Voyager	277,228	333,982	27,768
Northridge	Millennium	1,575,695	2,170,589	130,322
Pomona	Sierra	776,251	1,058,236	43,514
Sacramento	Alma	1,189,093	1,415,562	98,675
San Bernardino	Millennium	935,366	868,453	29,001
San Diego	Sierra	2,340,641	2,513,984	46,402
San Francisco	Millennium	1,524,464	1,677,437	89,161
San Jose	Sierra	1,505,676	1,441,279	94,745
San Luis Obispo	Millennium	805,508	724,531	38,895
San Marcos	Alma	441,812	538,203	17,071
Sonoma	Sierra	506,040	585,082	191,187
Stanislaus	Millennium	344,311	513,565	31,611
Total		21,160,755	25,396,798	1,417,037

BIBSYS

BIBSYS service organization provides library automation and other services to a consortium of 105 participating institutions in Norway , including the National Library and the major academic and research libraries. BIBSYS had originally developed its own automation system for these libraries. Beginning in 2009, it began a process to deploy a new system based on an externally developed technology platform. To continue with its mission to provide customized services for these libraries, BIBSYS required a platform with a robust set of APIs that could be used as the basis for additional functionality and

The libraries of the California State University system represent an incredibly ambitious project.

interfaces that it would develop. BIBSYS initially selected OCLC WorldShare Management Services in November 2010 as the basis for its new system, but withdrew from that arrangement by mutual consent with OCLC in August 2012. The organization subsequently selected Ex Libris Primo as its discovery service, announced in May 2013. BIBSYS conducted a separate tender process for its new resource management and announced its selection of Alma in December 2013. Implementation is underway with an anticipated completion date in late 2015.

Washington State Board for Community and Technical Colleges

The Washington State Board for Community and Technical Colleges, including the 34 publicly funded community and technical colleges in the state, serving a population of 388,000

Wales Higher Education Libraries Forum		
Institution	**Prior ILS**	**Bib Records**
Aberystwyth University	Voyager	677,846
Bangor & Glyndwr University	Sierra	591,673
Cardiff University & Welsh National Health Service	Voyager	856,381
Cardiff Metropolitan University	Alto	269,965
National Library of Wales	Virtua	6,643,696
Royal Welsh College of Music and Drama	Voyager	53,544
Swansea University	Voyager	738,399
University of South Wales	Symphony	365,602
University of Wales Trinity St. David	Horizon	637,326
Total		*10,834,432*

enrolled students, announced its selection of Alma and Primo in July 2015. These libraries will be moving from a variety of ILS products separately installed in each institution, including SirsiDynix Symphony, Civica's Spydus, Innovative's Millennium, as well as Ex Libris Voyager, to a unified system based on Alma.

A group of major universities in Israel have joined a program of early adopters for that country. Institutions included include Hebrew University of Jerusalem, Tel Aviv University, the University of Haifa, the College of Management—Academic Studies, IDC Herzliya, Max Stern Yezreel Valley College, Oranim Academic College of Education, and the Shenkar College of Engineering, Design and Art. The Hebrew University of Jerusalem was the original development site for Ex Libris Aleph in the early 1980s.

Other Announcements
On a much smaller scale the Minnesota Bridge Consortium announced its selection of Ex Libris Alma and Primo in August 2015. This consortium, including of St. Olaf College and Carleton College will migrate from Millennium.

Other recent selections for Alma include the University of Leiden in the Netherlands and University of Leicester in the UK.

This wave of announcements documents that Ex Libris has found a receptive audience for its Alma library services platform not only in the large research and academic library sector, but especially among consortia and large networks of libraries seeking to automate their libraries through a unified technical infrastructure.

Ex Libris has become dominant, but does not monopolize this sector. OCLC has also made some inroads into academic consortia with its WorldShare Management Services. The LIBROS consortium of 16 academic institutions in the state of New Mexico announced its selection of OCLC's WorldShare Management Services in January 2014. By late December 2014, all of the libraries had completed their migrations. The Private Academic Library Network of Indiana (PALNI), a consortium of 23 small college and seminary libraries, has implemented WorldShare Management Services (http://www.palni.org/),following its selection in January 2015. Cooperating Libraries in Consortium, a consortium of the academic libraries of eight small colleges and universities announced its selection of ProQuest Intota in March 2014.

Innovative Top Pick for Florida Universities and Community Colleges

The state of Florida has a process underway that proposes to provide a shared library automation system spanning all of its publicly funded universities and community colleges. The libraries in Florida have a long history of state-wide library automation, though with separate organization and infrastructure between the universities and the community colleges.

A new project will potentially provide a new library automation system for the 40 publicly funded universities and community colleges in the state of Florida. The libraries of the public universities and the community colleges in the state were formerly organized separately: Florida Center for Library Automation (FCLA) managed the Ex Libris Aleph implementations for the universities; and the College Center for Library Automation (CCLA) operated a shared Aleph implementation for the community colleges. These organizations combined in 2012 into the Florida Virtual Campus and have since transitioned to the Complete Florida Plus Program.

An "Invitation to Negotiate Next Generation Integrated Library System" was issued on December 15, 2014. The University of Florida, on behalf of the Complete Florida Plus Program, issued a Notice of Intent to Award Contract on April 7, 2015 to Innovative Interfaces for a Next Generation Integrated Library System. The notice stipulates that the award is contingent on the Florida State Legislature appropriating funding for the project (see: http://uwf.edu/media/university-of-west-florida/offices/procurement/bids/14itn-04aj/14ITN-04AJ_NoticeOfIntent.pdf).

While Innovative has lost some key academic library customers, especially to Ex Libris in the consortial projects mentioned above, its selection for the Complete Florida Plus Program turns the tables around. Although public announcements have been made regarding its selection, a firm contract has not yet been finalized.

Innovative reports impressive Sales for Jan-Jun 2015

Innovative Interface issued an announcement delineating the sales of Sierra, Polaris, and Virtua completed during the first half of 2015. More than 600 libraries have selected one of these products. Both Sierra and Polaris saw strong sales. The 49 sales Innovative made for Sierra exceeded the 37 for Polaris. The number of libraries represented in the Polaris sales more than doubled that for Sierra.

Product	Libraries	Facilities
Sierra	49	200
Polaris	37	428
Virtua	3	3
Total	89	631

Some of the larger public library organizations selecting Sierra include:

- the Black Country Public Libraries Consortium in the United Kingdom, including 78 libraries that will migrate from Capita's Alto library management system,
- the 13 libraries of the Gold Coast City Council in Australia, migrating from SirsiDynix Symphony,
- the 15 branches of the Middlesex County Library in Ontario, Canada, migrating from SirsiDynix Symphony,
- the 10 branches of the Elgin County Library in Ontario Canada migrating from SirsiDynix Symphony.

Innovative also reported a number of academic libraries selecting Sierra, including the University of Northampton in the UK (migrating from Capita Alto) and the National Technical University of Athens. Academic libraries moving to Sierra from Millennium include University of Limpopo in South Africa; Texas A&M University-Kingsville; London South Bank University; Universiti Utara Malaysia; University of California-Davis, Law Library; University of Colorado-Denver, Auraria Library; Savannah College of Art & Design; Sefako Makgatho Health Sciences University in South Africa; University of Essex in the UK; Shawnee State University in California, as well as a number of community and technical colleges.

Public Libraries Choosing Polaris

Polaris, prior to its acquisition by Innovative and since, has been adopted almost exclusively by public libraries in the United States in Canada. Interest in Polaris continues, with an impressive list of sales that have taken place since the change in ownership.

Consistent with the trend of large-scale implementations, the province of Saskatchewan selected Polaris as its next automation system. This project spans the 10 municipal and regional libraries in the province and their 345 cumulative facilities, serving the province's 1.1 million residents. The Saskatchewan Information and Library Services is one of the largest consortia of public libraries in North America, exceeded only by the Illinois Heartland Library System, which has 427 libraries serving a population of 2.24 million. This project does not add to the overall size of Innovative's customer base because the consortium will be migrating from Sierra.

Rob Zylstra, SILS, Executive Director noted: "SILS signed the Polaris contract in January 2015, well after the acquisition by III. SILS spent considerable time and effort considering the implications of the acquisition and in the end determined that it still made a lot of sense for SILS to migrate to Polaris. The product is a very good fit for the SILS environment—LEAP and the robust APIs are especially worth mentioning. It is clear that III is still actively developing Polaris. This is especially noticeable with LEAP. SILS has confidence in the product. "

Other public libraries selecting Innovative's Polaris ILS include:

- The six branches of the Manatee County Public Library in Florida will migrate to Polaris from SirsiDynix Horizon.
- The nine branches of the Municipal Library Consortium of St. Louis County, including the suburbs of the city of St. Louis, will migrate to Polaris from SirsiDynix Horizon.
- Several libraries in South Dakota will migrate to Polaris

from Ex Libris Aleph that was the basis of the South Dakota Library Network. Because Aleph is oriented to research and academic libraries, it is not surprising that many of the public libraries in this state-wide consortia have opted to break off and implement systems more suited to their interests.

Wins and losses for The Library Corporation

One of the migrations to Polaris came at the expense of Carl.X from The Library Corporation. The 18 library facilities affiliated with the Solano, Napa, and Partners (SNAP) Library Consortium in California will migrate from their Carl.X ILS from The Library Corporation to Polaris. Any vendor sees occasional defections, making it important not to read too much into any single transition. Given the relatively small number of installations of Carl.X, it will be interesting to monitor whether any additional libraries decide to move to other systems in the future. As a system oriented to

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very large public libraries and consortia, each installation represents significant revenue, and it takes only a small number to maintain the viability of the product.

The Los Angeles Public Library, one of the largest municipal systems in the United States, announced in December 2014 that it extended its contract for Carl.X for at least four years. LAPL implanted the original Carl ILS in 1993, upgrading to Carl.X in 2009.

Carl.X also finds use outside of libraries. Baker & Taylor has two installations Carl.X, one for its Library Services Group and another for its Corporate Cataloging Services. The system manages a bibliographic database of more than 6 million titles. TLC announced in July 2015 that both systems have recently upgraded from earlier versions (Carl.Solution) of the product to Carl.X.

The Library Corporation reported several new sales of its Library.Solution ILS, including Ohio County Public Library in Wheeling, WV; Mercersburg Academy in Pennsylvania; and a group of three libraries in Venango County, PA.

People in the News

John. F. Helmer, Executive Director of the Orbis Cascade Alliance, has announced that he will retire in March 2016. His involvement began with the ORBIS consortium in Oregon in 1993 as a systems administrator, and in 1999 he became its Executive Director. Helmer's many accomplishments include the merger of ORBIS with Cascade in 2002, establishing the Orbis Cascade Alliance. Both ORBIS and Cascade operated individual INNOPAC integrated library systems, with a union catalog and direct consortial borrowing capability provided through INN-Reach. The two INN-Reach implementations were combined when the organizations merged. INN-Reach was replaced by OCLC WorldCat Navigator in 2008. Under Helmer's leadership, the Orbis Cascade Alliance conducted an extensive procurement process for a shared automation environment that ultimately led to the selection of Ex Libris Alma and Primo and its successful implementation concluding in January 2015.

Bibliotheca, the global company offering RFID-based self-service and security technology products for libraries has added two North American business development managers. **Doug Potts** comes to Bibliotheca from previous positions at Innovative Interfaces and OCLC and will represent Bibliotheca in the Northwest United States. **Amber Thompson** has been promoted from within the company and will serve as a business development manager for the northeastern United States.

Lynn Silipigni Connaway, Senior Research Scientist for OCLC, has been as President of the Association for Information Science and Technology for 2017 and will serve as president-elect beginning in 2016.

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