AGENTS OF CHANGE

Automation product vendors are poised for a major transition

By Marshall Breeding

As development efforts near completion on a new slate of automation products, vendors are beginning to pull out all the stops to monetize them. A new round of competition is heating up to place these new products in libraries, replacing their own legacy products and aiming to displace those of other companies. Ex Libris's Alma, OCLC's WorldShare Management Services, Innovative Interfaces' Sierra, and Serials Solutions' Intota, as well as the open source Kuali OLE project, are positioned to move toward more dominant market share through a product cycle that will play out over the next decade. These new-generation products will compete with well-established proprietary and open source systems following an evolutionary path, such as Evergreen, Koha, Polaris ILS, The Library Corporation's (TLC) Library.Solution, SirsiDynix's Symphony, and Auto-Graphics' AGent VERSO.

The transition to new-generation products is a delicate business. Libraries don't respond well to enforced, abrupt transitions. But savvy and well-resourced vendors divide their energies between developing, maintaining, and supporting their existing products, even as they channel the bulk of their energies to developing and marketing new ones. Failings with legacy products can result in lost credibility, which can take a large toll on the prospects of new offerings. [Ed. note: A more detailed version of this decade-long overview, with information about the K–12 and international markets and more in-depth charts, can be found online at thedigitalshift.com/?p=7053.]

As issues regarding ebook lending roil libraries, publishers, and service providers such as OverDrive, automation vendors are working to integrate ebook management and access effectively into their management platforms and discovery services.

Mobile and social networking themes are driving other threads of development. The ever-increasing use of smartphones, tablets, and other mobile devices are making it necessary for libraries to expand access to their collections and services to these users. Most vendors now offer some type of mobile product, and business models include free options that increase the value of their broader offerings to add-cost products. The pervasive influence of social networking sets expectations for all patron-facing products and presents opportunities for products that directly engage these media, such as SirsiDynix's Social Library, a native Facebook app that enables catalog search and patron services.

The state of the industry

In 2011, the library automation economy—the total revenues (including international) of all companies with a significant presence in the United States and Canada—was $750 million. This estimate does not necessarily compare directly to 2010's $630 million, as this year's estimate includes a higher proportion of revenues from OCLC, EBSCO, and other sources previously unidentified. (Using the same formula, 2010 industry revenues would be estimated at $715 million.)

As OCLC becomes ever more involved as competition in the library automation industry, we have performed a more detailed analysis of what proportion of its revenues derive from products and services comparable to other companies considered in this report. Of OCLC's FY11 revenue of $205.6 million, we calculate that $57.7 million falls within that scope.

A broader view of the global library automation industry that aggregates revenues of all companies offering library automation products and services across the globe totals $1.76 billion, including those involved with radio-frequency identification (RFID), automated handling equipment, and self-check, or $1.45 billion excluding them. Library automation revenues limited to the United States total around $450 million.

The overall library economy continues to suffer major cutbacks that may never be fully restored, so library automation vendors are facing enormous challenges to find growth opportunities. Libraries may only be able to justify investments for tools that enable them to operate with fewer resources. Software-as-a-service (SaaS) deployments, for example, result in revenue gains through subscription fees commensurate with delivering a more complete package of services, including hosting; libraries see overall savings as they eliminate local servers and their associated costs. Stronger companies can increase their slice by taking on competitors with weaker prod-

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ucts, especially those in international regions.

The ongoing trend of open source integrated library systems (ILSs) cannot be discounted. Open source ILS implementations shift revenues from one set of companies to another, often at lower contract values relative to proprietary software. Scenarios vary, so it's difficult to determine whether these implementations result in true savings in total ownership costs and to what extent costs shift back to the libraries or their consortial or regional support offices.

Business cycles

The first sentence of *LJ*'s 2002 Automation Marketplace remarkably still reflects the state of the industry today:

"A smaller group of larger firms dominate the library automation marketplace. They are largely international, diversified, and privately owned. The mergers and consolidations that marked the recent history of the industry have absorbed the weaker products and companies."

The consolidation of that era, funded mostly by venture capital or individual investors, led to much more aggressive changes that have played out since.

But the library automation industry of 2002 was also strikingly different from that of today. Among the major companies, Innovative Interfaces stood as the largest company in terms of revenue, personnel, and customers. In the big news of that year, Sirsi had acquired DRA. Epixtech, soon to be renamed Dynix, had previously acquired NOTIS and earlier had taken over a set of automation products cast off by OCLC. Endeavor Information Systems was operating under the ownership of publishing giant Elsevier Science. Gaylord Information Systems operated as a subsidiary of Gaylord Bros. Geac was beginning to see its North American market share erode.

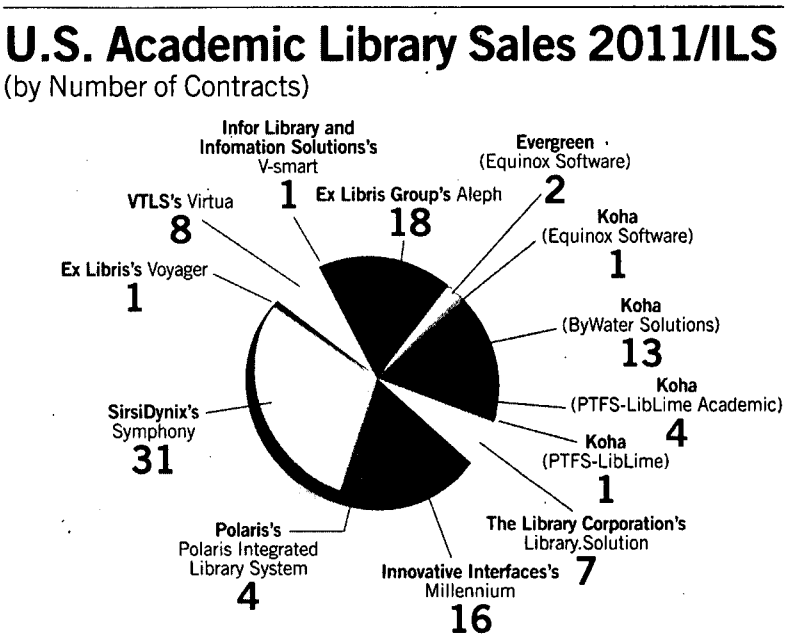
Largely fueled by private equity, the last decade has seen a series of business transactions that have concentrated much of the industry's economy into the hands of a small number of companies. Golden Gate Capital acquired Geac and folded it into Infor, where its library division continues with a focus on European libraries. Vista Equity Partners assembled SirsiDynix from the already consolidated Sirsi and Dynix, executing a strategy of business integration that has resulted in a streamlined company that manages a very large customer base with a lean workforce. Francisco Partners bought Ex Libris and Endeavor in separate transactions, forming a new company (Ex Libris Group) with a research and development focus that has driven the creation of new products that have attracted a growing customer base. Leeds Equity acquired ownership in 2009, largely continuing existing business strategies.

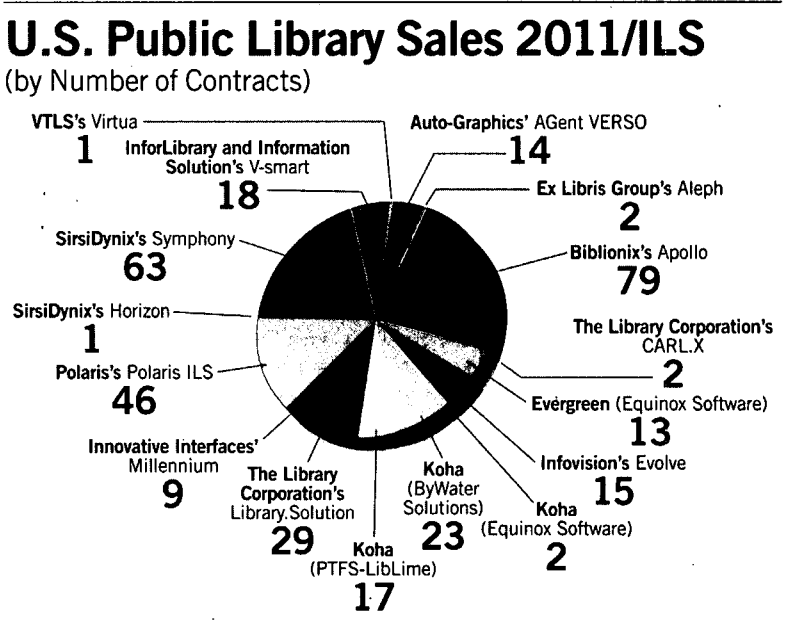
Family owned Follett Software Company acquired competitor Sagebrush, including its acquired ILS products Winnebago Spectrum, InfoCentre, and Athena. Once in widespread use, each of these has been dying a slow death, starved from development and used by libraries hard-pressed to find resources to replace them. Nonprofit OCLC made a series of business acquisitions, including PICA, Fretwell-Downing, Sisis Informationssysteme, InfoVision Technologies, BOND GmbH, Openly Informatics, Useful Utilities (EZ Proxy), and DiMeMa (CONTENTdm). Along with these large consolidated entities, many mid-sized and small companies thrive.

The business cycles that have shaped the industry to this point will likely continue. At some point, current private equity owners will cash out their investments. These new transactions might simply involve new ownership, but the possibility of additional consolidation cannot be ruled out.

Large companies dominate

Ex Libris now ranks as the largest company in terms of personnel, 512 overall, with 170 allocated to development, nearly





Data represents total contracts for ILSs, not total number of libraries. U.S. companies only.

SOURCE: *LJ* AUTOMATION MARKETPLACE SURVEY 2012

TABLE 1 THREE-YEAR SALES TRENDS AND SUMMARY*

COMPANY	SYSTEM NAME	NEW CUSTOMERS 2009	NEW CUSTOMERS 2010	NEW CUSTOMERS 2011	TOTAL SALES 2009	TOTAL SALES 2010	TOTAL SALES 2011	2011 U.S. SALES	2011 NON-U.S. SALES	2011 TOTAL INSTALLED
LIBRARY SERVICES PLATFORMS										
Ex Libris	Alma			0		8	24	12	12	55
Innovative Interfaces, Inc.	Sierra			1			206	647	53	0
OCLC	WorldShare Management Service						184	46	4	38
INTEGRATED LIBRARY SYSTEMS FOR PUBLIC, ACADEMIC AND CONSORTIA										
Auto-Graphics	AGent VERSO	16	13	12	18	13	16	271	2	463
Biblionix	Apollo	55	87	79	55	87	79		0	272
ByWater Solutions	Koha	7	44	48	7	44	54	445	1	446
Equinox Software	Evergreen	15	15	20	18	15	21	116	1	450
Equinox Software	Koha			6			6	4	1	17
Ex Libris	Voyager	1	1	1	2	5	1	4		1255
Ex Libris	Aleph	38	30	18	47	39	25	1	24	2316
Infor	Vubis Smart	6	1	0	12	1	0			213
Infor	V-smart	6	12		12	21	30		197	141
InfoVision Technology	Evolve		5	9		73	19	100	0	100
Innovative Interfaces	Millennium	34	37	32	45	39	32	20	12	1425
The Library Corporation	Library Solution	30	43	48	30	43	48	45	3	773
The Library Corporation	Carl.X / Carl.Solution	0	0	0	0	3	2	16	4	20
OCLC	Amlib LMS	5	0	0	5	12	0			
Polaris Library Systems	Polaris ILS	33	23	53	33	23	53	51	2	418
PTFS Liblime	LibLime Academic Koha			7			7	9		123
PTFS Liblime	Koha		44	27		44	27	65	11	503
SirsiDynix	Symphony		47	41		126	122	78	71	2377
SirsiDynix	Horizon		0	2		20	2	1	1	1311
VTLS Inc.	Virtua	18	21	12	18	22	13	1	12	1798

*Numbers represented here are as reported by the vendors; blank spaces indicate that no data was provided, or companies gave only aggregate figures. Special libraries not included.

SOURCE: *LJ* AUTOMATION MARKETPLACE SURVEY 2012

twice that of any competitor. Based on revenue estimates, SirsiDynix, Ex Libris, and Innovative Interfaces, respectively, rank largest in the industry.

In terms of ILS installations supported in the academic and public library sector, SirsiDynix leads with 3,688 (Symphony: 2,377, Horizon: 1,311), followed by Ex Libris with 3,571 (Aleph: 2,316, Voyager: 1,255), then Innovative Interfaces (1,425).

As a whole, OCLC looms larger than any of the other firms in the library automation industry by personnel employed, libraries served, and revenues. But when considering only the specific areas of involvement with the scope of the library automation industry, OCLC ranks about fifth.

Ample opportunity

While large companies dominate, many smaller enterprises thrive by exploiting niches that larger firms may not consider worthwhile and cultivating new library customers by providing high-quality personalized services.

Start-ups are not common in the library automation industry, though some recently formed companies show great potential for growth. ByWater Solutions entered the scene most recently, in April 2009, and has seen dramatic growth in the number of libraries contracting for its services to support the open source Koha ILS. In its first three years, it garnered seven, 44, and 54 support contracts, respectively, serving a total of 446 libraries. Biblionix began offering its hosted Apollo ILS in 2006, with active marketing beginning in 2008, with 49, 55, 87, and 79 respective sales in subsequent years, and a current customer base of 272 libraries. Its focus on automating small public libraries with a fully hosted web-based ILS has proven to be a successful strategy.

The library automation industry includes a number of mid-sized companies with very long histories. Some of these have remained relatively flat, or have even downsized over time, but continue to operate profitably. Such companies include Auto-Graphics, with its 45 personnel in 2002, down to 34 today; Book Systems (88 to 60); and EOS International (69 to 52). Others have seen growth, such as TLC (173 in 2002, up to 199 in 2011), VTLS (100 to 110), and Keystone Systems (12 to 17).

Business transitions

Relatively few mergers or acquisitions transpired in 2011. UK-based Talis, a company that had divided its business activities between traditional library automation products and services and semantic web technologies, split itself along those lines; Capita, a large outsourcing services firm acquired the library automation side, including its Alto library management system and related products. Talis will continue to exploit its semantic web services but largely outside the library arena.

SydneyPLUS, a company involved primarily with special libraries, acquired the brand and library automation assets of competitor Inmagic, but Inmagic will continue to operate as an independent wholly owned subsidiary.

OCLC continued its buying spree of European library automation companies with the acquisition of BOND, which supplies the Bibliotheca2000 and Bibliotheca.Net library management system to around 4000 libraries in Germany, Austria, and Switzerland. According to the 2011 OCLC Annual Report, this transaction was valued at $5.9 million. This acquisition is but the latest in a series that brings large numbers of libraries operating legacy ILS products under OCLC's aegis. We can speculate that one thread of interest involves providing these libraries with an attractive migration path

into OCLC's WorldShare Management Services.

In the RFID, self-service, and automated handling arena, a major consolidation took place through the acquisition of Switzerland-based Bibliotheca RFID Systems, UK-based Intelliident, and Integrated Technology Group in the United States by the private equity firm One Equity Partners to form a new global firm. In February 2012, Bibliotheca Group also acquired the Swiss company Trion AG, which designs and manufactures automated materials handling equipment for libraries.

Library services platforms

One of the major vectors of the industry involves the emergence of a new genre of automation products poised to begin a new cycle of migrations. These products differ substantially from ILSs and cannot be considered as within the same product category. We term these new offerings *library services platforms*. Salient characteristics include management of print and electronic library materials, reliance on global knowledgebases instead of localized databases, deployment through multitenant SaaS based on a service-oriented architecture, and the provision of a suite of application programming interfaces (APIs) that enable greater interoperability and extensibility. There are significant differences within the product category, however, with quite distinct conceptual, functional, and technical characteristics. Implementation of a library services platform can potentially displace multiple existing products, including ILSs, electronic resource management tools, OpenURL link resolvers, and digital asset management systems.

OCLC was first out of the blocks in this genre. For 2010, we reported five production deployments of what was then called Web-scale Management Services. The product has since been rebranded as WorldShare Management Services (WMS), and OCLC has continued to develop the underlying infrastructure and articulate its vision. The WorldShare Platform provides the general infrastructure that underlies WMS, and it can also serve as the basis for applications created by OCLC members or third parties. OCLC intends to cultivate an active community of library programmers engaged with creating services based on the WorldShare Platform. OCLC has expanded the number of data centers supporting the WorldShare Platform to provide a more global infrastructure, growing from the original two in the United States, with one in the UK in 2011, with plans for more in continental Europe, Canada, and Australia in 2012.

By the end of 2011, 38 libraries were in production with WMS and another 184 had committed to implement. WMS broke into the realm of the large academics with the University of Delaware committing to implement by 2013. In early 2012, OCLC announced the WorldShare License Manager to offer full functionality for managing electronic resources.

Ex Libris continues to work toward the completion and release of Alma, its new library services platform, implementing its principles of unified resource management. Development has been under way since 2009 with the engagement of development partners Boston College; Princeton University, NJ; Katholieke Universiteit Leuven, Flanders, Belgium; and Purdue University, West Lafayette, IN. Through 2011, the institutions worked with Ex Libris to provide input into the design, testing, and evaluation of a series of Alma Partner Releases, culminating with a final version delivered toward the end of the year. General release of Alma is expected in early to mid-2012. Beyond the initial set of development partners, Ex Libris has signed 24 contracts for 55 institutions to become early adopters of Alma.

In April 2011, Innovative Interfaces announced that it would develop a new generation automation platform called the Sierra Services Platform. Taking forward the functionality of its Millennium ILS, Sierra embraces a new technical architecture, a more open design exposing a service layer of APIs for multiple functions, and a new suite of applications. Unlike Millennium, which offers separate modules for each functional area, Sierra follows a more unified approach, delivering all staff tasks through a single client. Sierra will make use of open source components such as PostgreSQL, for data storage and transactions, and Apache Lucene, for search and retrieval. Millennium had gained a reputation as a relatively closed system—a vulnerability at a time when many libraries strategically want more access to data and functionality. Innovative Interfaces began initial testing of Sierra late in 2011 and plans to deliver an initial production version this year.

In June 2011, Serials Solutions announced that it was jumping into the library automation arena with a web-scale management solution, since named Intota. It would extend the approach that Serials Solutions has taken with the management of electronic resources to print materials, including reliance on a knowledgebase collectively shared by libraries that use the product, management of individual library holdings through profiles, and deployment through multitenant SaaS. Serials Solutions will release Intota in multiple phases, beginning in late 2012, with a more complete product available by the end of 2013.

Sales leaders

There was a 2011 uptick in contracts for major library automation products. Innovative Interfaces led the industry with an impressive 206 contracts signed as early adopters of Sierra, representing 700 libraries and 1,616

TABLE 2 PERSONNEL ANALYSIS*

COMPANY	2011 DEVELOPMENT	2011 SUPPORT	2011 SALES	2011 ADMIN	2011 OTHER	2011 TOTAL	CHANGE SINCE 2010	2011 LIBNS ON STAFF
Auto-Graphics, Inc.	7	8	8	3	8	34	2	6
ByWater Solutions	3	12	3	3	1	13	7	6
Civica	19	371	14	6		410	10	21
Cuadra	7	4	2	3	2	18	0	4
EOS International	11	14	20	4	3	52	0	2
Equinox Software	6	5	2	3	5	21	-1	11
Ex Libris	170	231	54	44	13	512	8	
Infor Library Solutions	16	36	13	6		71	0	
InfoVision Technology	5	3	3	0		13	3	0
Innovative Interfaces, Inc.	83	158	43	24	3	311	4	118
Keystone Systems, Inc.	5	6	3	2	1	17	0	3
The Library Corporation	39	91	28	13	28	199	0	25
OCLC						1211	11	
Polaris Library Systems	27	42	15	2		86	8	29
PTFS	5	16	8	8		155	0	14
Serials Solutions	80	50	46	4	57	237	29	60
SirsiDynix Corporation	84	166	51	23	56	380	-5	
VTLS Inc.	24	48	12	8	18	110	14	17

*Numbers represented here are as reported by the vendors; blank spaces indicate that no data was provided.

SOURCE: *LJ* AUTOMATION MARKETPLACE SURVEY 2012

facilities. The company inked an additional 32 contracts for Millennium, totaling 238 contracts overall in 2011, an unprecedented number for at least the last decade in the public and academic sectors.

In this saturated market, where few libraries are automating for the first time, winning contracts with new clients is essential to grow a company's customer base. In 2011, Polaris led in new-name sales, more than doubling its 2010 total with 53 contracts, followed by TLC with 48 contracts for Library.Solution (down from 43). Forty-one of the 122 contracts (covering 725 libraries) that SirsiDynix signed for Symphony were to libraries not previously using its products. And OCLC reported 184 contracts for WMS in 2011.

In the open source arena both ByWater Solutions and Equinox Software saw substantial gains. LibLime-PTFS saw a decline in new contracts from 40 in 2010 to 22 in 2011.

Not surprisingly, companies offering new library services platforms saw declines in their traditional ILS products: Ex Libris reported 25 Aleph contracts in 2011, down from 39 in 2010; Innovative Interfaces made 39 sales of Millennium in 2010 but only 32 in 2011, though all were to new-name customers.

TABLE 3 SALES OF PRODUCTS BY CATEGORY*

COMPANY	SYSTEM NAME	NEW NAME CUSTOMERS	EXISTING CUSTOMERS	TOTAL CONTRACTS	INSTALLED
LIBRARY SERVICES PLATFORMS					
Ex Libris Group	Alma	2	24	24	55
Innovative Interfaces	Sierra Services Platform	1	205	206	0
OCLC	WorldShare Management Services			184	38
DISCOVERY PRODUCTS AND SERVICES					
Ex Libris	Primo	14	90	111	914
Innovative Interfaces	Encore			72	326
Mandarin Library Automation	M3 Web OPAC			42	326
OCLC	WorldCat Local				1578
Serials Solutions	Summon	214	21		407
Serials Solutions	AquaBrowser	214	154		250
SirsiDynix	SirsiDynix Enterprise	12		100	251
SirsiDynix	SirsiDynix Social Library	0		37	37
The Library Corporation	LS2 Kids			43	88
The Library Corporation	LS2 PAC			88	236
VTLS	Chamo	7	1	7	51
VTLS	ChaVis				3
VTLS	Visualizer	1		1	3
VTLS	Vitation				2
FEDERATED SEARCH					
Auto-Graphics	AGent Portal	2	2	2	1307
Auto-Graphics	AGent Search	2	2	2	1307
Ex Libris Group	MetaLib	15	28	43	1746
Innovative Interfaces, Inc.	Research Pro			2	314
Serials Solutions	360 Search	58			330
Serials Solutions	WebFeat	0			40
MOBILE PRODUCTS					
The Library Corporation	LS2 Mobile			27	33
SirsiDynix	BookMyne				530

As the library automation industry becomes increasingly globalized, many companies based in the United States have significant international involvement. Innovative Interfaces gets 30 percent of its revenue from outside the United States. Just under half of the contracts SirsiDynix signed in 2011 were to international libraries, and OCLC is active in many regions of the globe, with 25 percent of revenues earned outside the United States. Ex Libris, based in Israel, earns about one-third of its revenue in the United States. Civica currently has only a handful of sites in the United States or Canada, but it is a dominant player in the UK, Australia, and Asia with its Spydus LMS and other products. Infor Library and Information Solutions, a small division within a very large IT services firm, stands as a significant player in the European library automation market, with a small presence in the United States and Canada.

Technology cycles

A decade ago, the library automation industry was in the throes of a transition from ILSs based on host-terminal hardware and text-based interfaces to new products based on then-in-vogue client/server architecture. Mainframes had become prohibitively expensive to operate. Powerful personal computers with graphical interfaces and faster networks ushered in this new era in computing. A wave of development beginning in the early to late 1990s launched client/server ILSs, including Dynix's (now SirsiDynix's) Horizon, Endeavor's (now Ex Libris's) Voyager, VTLS's Virtua, and the Polaris ILS. Sirsi's Unicorn ILS evolved from the host-terminal era through the introduction of new clients, initially InfoVIEW and later WorkFlows. Innovative Interfaces took a similar evolutionary route by developing a new set of Millennium modules to operate with the same server software as INNOPAC.

Now, prevailing trends in technology favor products that embrace service-oriented architectures and web-based interfaces, designed to be deployed though cloud technologies, though some concerns persist regarding security and reliability.

That said, the trend away from local library hosting isn't new. In 2002, we observed that more companies offer an ASP (Application Service Provider) model.

That model of vendor hosting of client/server products persists today, often labeled as managed services or SaaS. In its infancy a decade ago, this model has recently become a heavily promoted mainstream option. More than 750 libraries use SirsiDynix's hosting services for Symphony or Horizon. As local hardware fails or reaches the end of its useful life, many libraries opt to shift to a vendor-hosted arrangement. Apart from hardware issues, some libraries move to hosting services to free their technical support staff to attend to other priorities.

The newly developed library services platforms follow

TABLE 3 SALES OF PRODUCTS BY CATEGORY* (CONTD.)

COMPANY	SYSTEM NAME	NEW NAME CUSTOMERS	EXISTING CUSTOMERS	TOTAL CONTRACTS	INSTALLED
DIGITAL LIBRARY MANAGEMENT SYSTEM					
Auto-Graphics	AGent Digital Collections				2
Ex Libris Group	DigiTool	4	1	7	193
Ex Libris Group	Ex Libris Rosetta	1	0	5	15
OCLC	CONTENTdm				924
SirsiDynix	SirsiDynix Portfolio	8		44	55
VTLS	VITAL Media				1
ELECTRONIC RESOURCE MANAGEMENT SUPPORT					
Ex Libris Group	Verde	2	7	8	229
Innovative Interfaces	Electronic Resource Management			18	332
Serials Solutions	360 Core	76	456		621
Serials Solutions	360 Counter	66	102		256
Serials Solutions	360 MARC Updates	53	310		444
Serials Solutions	360 Resource Manager	33	145		273
Serials Solutions	Ulrichs Serials Analysis System	21	106		167
Serials Solutions	Ulrichsweb	53	809		979
INSTITUTIONAL REPOSITORY					
VTLS	VITAL	1		1	31
OPENURL LINKING APPLICATION					
Ex Libris Group	SFX	66	93	119	2306
Serials Solutions	360 Link	224	593		974
Innovative Interfaces	WebBridge LR			9	385
RESOURCE SHARING SYSTEMS					
Auto-Graphics	AGent Resource Sharing				2703
RFID SUPPORT					
VTLS	FASTRAC (RFID)	1		1	18
ARCHIVES MANAGEMENT					
VTLS	Virtua for Archives				2

*Numbers represented here are as reported by the vendors; blank spaces indicate that no data was supplied, or companies gave only aggregate figures. U.S. companies only.

SOURCE: *LJ* AUTOMATION MARKETPLACE SURVEY 2012

more modern notions of cloud computing. Many offerings will be offered in this model exclusively, including WorldShare Management Services, Alma, and Intota. Others will have options for local installations, but we can expect that cloud deployments will dominate over time.

The product cycle

Over the next decade, we can expect at least the same level of product turnover as in the previous one. The vast majority of automation systems installed today follow the client/server approach. Just as the last decade saw a complete turnover from host-terminal products to ones based on client/server architectures, we can anticipate a similar pattern. We can also expect similar themes of "capturing the migrating customer" or "the competition heats up" (titles of the Automation Marketplace in 2002 and 2003, respectively) in the next few years, as a new wave of migrations from legacy ILS products to new library services platforms gains full steam.

Open source opportunities

Many libraries continue to opt for open source ILSs rather than proprietary products. Evergreen and Koha ILS products have become mainstream. Both offer features comparable to proprietary products and have commercial companies that offer migration, hosting, and support services. Libraries can also sponsor development for new features they require that may not be available in the software. In the United States and Canada, companies offering services include Equinox Software, the dominant firm involved with Evergreen, though it also supports a handful of libraries using Koha; ByWater Solutions, which supports Koha and is aligned with the global koha-community.org developers; and PTFS-LibLime, which offers services for two ILS products, LibLime Koha and LibLime Academic Koha. Other organizations involved in support for Evergreen include the nonprofit LYRASIS member organization; the PALS organization, associated with the Minnesota State Colleges and Universities system; and HSLC, a nonprofit supporting libraries in Pennsylvania.

In 2011, more libraries contracted for open source ILS products than in the previous year. Equinox signed 21 support contracts for Evergreen representing 117 libraries and 415 facilities, compared to 15 contracts in 2010, and another six for Koha. ByWater Solutions' 54 contracts representing 231 libraries beat the 44 it signed in 2010. PTFS signed 22 deals for LibLime Koha representing 76 libraries, a decline from the 44 reported in 2010; PTFS also reported an additional seven contracts for LibLime Academic Koha.

The efforts of the Kuali OLE project, meanwhile, will not produce an open source ILS but a product consistent with the characteristics of the library services platform. The Kuali OLE partners are led by Indiana University, Bloomington, and include the University of Maryland, College Park; Lehigh University, Bethlehem, PA; University of Chicago; University of Pennsylvania, Philadelphia; University of Michigan, Ann Arbor; Duke University, Durham, NC; North Carolina State University, Raleigh; and a consortium of university libraries in Florida. Partial funding is provided through the Andrew W. Mellon Foundation; the Kuali Foundation manages its governance. The project anticipates completion of the initial version of the Kuali OLE software in December 2012, with implementation in partner institutions beginning in 2013. The Kuali OLE project has also engaged a commercial firm, Troy, MI–headquartered HTC Global Services, as a development partner. We can anticipate commercial firms gathering around Kuali OLE as they have open source ILS products.

Open APIs

Libraries increasingly expect to be able to access the data and functionality of their key systems through APIs, and that expectation applies to both proprietary and open source software. The availability of an open and robust set of APIs is a key characteristic of the new genre of library services platforms, and many traditional ILS products also offer this capability. SirsiDynix Sym-

phony, for example, has included a proprietary set of APIs since 1995 (and in 2009 released its Web Services package delivering a more substantial subset of its APIs for development).

In 2011, Polaris Library Systems initiated a program called the Polaris Developer Network, in which it grants libraries using the Polaris ILS open access to its APIs, and provides a development environment and tools to help customers create and share applications. Individuals or organizations that aren't Polaris customers can purchase membership, including companies wanting to integrate their products or services with Polaris.

Ex Libris has a long-standing practice of creating APIs for its products and making them available to its customer libraries, and that will persist with Alma. Ex Libris reports ongoing interest in its Open Platform Program, originally launched in 2008, which provides the EL Commons CodeShare for library programmers to deposit and share the applications, scripts, or other code that they create using its products' APIs.

A fundamental precept of OCLC's approach with its WorldShare Platform involves providing access to its APIs and cultivating a community of library developers. Just as OCLC makes use of the WorldShare Platform APIs to develop large-scale applications, libraries can build their own applications. OCLC provides an App Gallery where completed applications can be certified by OCLC and made available for use by other libraries.

Intense discovery competition

Especially among academic libraries, the need for discovery tools broader than an ILS's online catalog is well accepted. Libraries with significant investments in electronic content—which includes almost any academic library—are likely to be in the market for a discovery service if they do not already have one. Products with large indexes of scholarly content vigorously compete in this arena, including Serials Solutions' Summon, Ex Libris's Primo Central, OCLC's WorldCat Local, and EBSCO Discovery Service, as well as Innovative Interfaces' Encore Synergy, which uses web services to integrate articles into search results. Points of differentiation include the quantity of materials indexed, whether the materials are indexed by citation or full text, and the effectiveness in producing relevant results.

The providers of discovery services based on consolidated indexes compete intensely to gain access to scholarly content aiming toward the most comprehensive representation possible. NISO launched the Open Discovery Initiative in 2011 to describe best practices or standards that apply to index-based discovery services with stakeholders from libraries, content providers, and producers of discovery services.

Public libraries seek discovery products that deliver a richer end user experience and that stimulate engagement with the library's programs and services. Many companies that offer ILS products to public libraries offer enhanced online catalog products that embody characteristics of discovery products, hoping to stem the tide of libraries seeking discovery products elsewhere.

In a remarkable move, TLC launched "Solutions That Deliver MORE," a program that provides all its current Library. Solution customers access without cost to its new patron and staff interface products, including LS2 PAC, LS2 Kids PAC, LS2 Mobile, and the LS2 Staff Web. Between 2004 and 2008, TLC successfully promoted AquaBrowser as a next-generation catalog for its customers, and many of those installations remain. With the acquisition of that technology by Bowker (and now part of the Serials Solutions portfolio), the company developed its own LS2 PAC and has transitioned some of those customers from AquaBrowser to LS2 PAC. With LS2 PAC available to these libraries free of charge, libraries operating AquaBrowser or TLC's legacy online catalog module are more likely to make the shift.

SirsiDynix offers Enterprise as its new-generation discovery layer and Portfolio for access to digital collections using the same platform. In 2011, SirsiDynix delivered an updated version of both products and reported 100 libraries contracting for Enterprise and 44 for Portfolio.

Taking a social media approach to discovery for public libraries, BiblioCommons continues to attract interest. Though the company did not provide sales statistics, BiblioCommons boasted many new libraries in 2011, including the New York Public Library; Vancouver Public Library, BC; and the Ohio-based CLEVNET consortium.

Expectations are rising for libraries to deliver effective discovery of library materials, along with interfaces that stimulate engagement. Combined with the large number of libraries that remain on older-generation online catalogs, this means that discovery products should continue to represent a significant portion of the industry.

Delivering through mobile devices

Interest in mobile options continues to intensify. Almost all providers of patron-facing library services offer mobile versions, but business models for access vary. SirsiDynix, for example, put out its basic BookMyne mobile app as a free download but also sells BookMyne+ to libraries if they want a customized mobile catalog. TLC, as noted, recently offered its LS2 Mobile to current customers without cost. Innovative Interfaces now provides Encore Mobile as a no-cost option for existing customers of its Encore and AirPAC. Auto-Graphics released iLib2Go in 2011, its initial mobile offering, as a free iPhone download available to all AGent VERSO sites.

Looking forward

Given the factors in play, we can anticipate moderate growth in the overall library automation economy in the next few years, with revenue enhancements associated with increased proportions of SaaS outweighing the deflationary impact of open source adoptions. Large companies with international reach, compelling products, and many customers poised to shift from local deployments to SaaS stand to make gains at a faster pace.

The lackluster sales of the last few years should begin to tick upward as libraries make commitments to new library services platforms. The turnover from legacy automation products will churn in the United States and even more intensely internationally. Expect sales of discovery products to climb; they can now be considered essential products, especially for academic libraries. As tech products become more compelling and reach sufficient levels of maturity, libraries that have deferred upgrading their infrastructure will increasingly move forward. Despite depressed budgets, libraries will continue to invest in technology products to maintain their position within their communities or parent institutions