Decision-Making in the Selection, Procurement, and Implementation of Alma/Primo

The Customer Perspective

Jin Xiu Guo and Gordon Xu

ABSTRACT

This case study examines the decision-making process of library leaders and administrators in the selection, procurement, and implementation of Ex Libris Alma/Primo as their library services platform (LSP). The authors conducted a survey of libraries and library consortia in Canada and the United States who have implemented or plan to implement Alma. The results show that most libraries use both request for information (RFI) and request for proposal (RFP) in their system selection process, but the vendor-offered training is insufficient for effective operation. One-third of the libraries surveyed are considering switching to open-source options for their next automation system. These insights can benefit libraries and library consortia in improving their technological readiness and decision-making processes.

INTRODUCTION

With the exponential growth of digital information, libraries have been seeking innovative systems to manage electronic resources and provide collection services. The next-generation integrated library system (ILS) should address both current challenges and future demands. With that in mind, new cloud-based commercial products have come into the market in recent years. Ex Libris Alma, OCLC Worldshare, and Innovative Sierra are often referred to as library service platforms (LSPs) compared to a client-based ILS. Among these new products, selecting and implementing a new system is no small task. Studies show that libraries might overlook the capacity of an ILS to accommodate many functions and make a tough choice between sticking with the current vendor or switching to another before investing time and resources to migrate to a completely new system.[1] Libraries do not make these kinds of decisions in a rational manner, which involves clearly defining the problem, identifying and evaluating potential options, weighing the pros and cons of each option, considering an organization's values, goals, and preferences, making a choice based on a systematic analysis, and continuously reassessing and adjusting the decision as new information becomes available. As a result, a selected system might not be the best fit for a library's actual needs.[2]

Library consortia also face a similar challenge, but in a more complex context. For example, sharing cost, level of collaboration, and integration with other library applications can be quite different from a small library to a large research library. Additionally, the requirement for security and scalability can vary among consortial members. Ninety-four percent of academic libraries migrated their systems to Alma in 2018 by joining a consortium.[3] At a consortial level, managing a system migration project adds a significant challenge because of the competing, often conflicting desires of constituent institutions.

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Budgeting for a migration project needs to be secured before the project takes place. The one-time migration cost has a huge impact on a library's decision on a new system. Lengthy procurement processes mean that it can take a year to communicate requirements, solicit bids, and make a final decision. Libraries also wonder if they should acquire such a new system through a consortial deal or on their own.

A successful implementation of a new system starts with making a sound choice. The system migration project encompasses various technological and management decisions made by project managers, team leaders, and library administrators. Decisions about data cleanup, migration mapping, system configuration, communication, and training can have a tremendous impact on project outcomes, staffing, existing workflows, and job functions and responsibilities. In the meantime, the project itself also provides libraries a great opportunity to improve the existing operational and staffing model and to adjust their strategy to manage technological and organizational change.

There are few studies on decision-making of the Alma/Primo selection, procurement, and migration from the user's perspective. Alma is a cloud-based library management system that helps libraries manage, deliver, and discover digital and physical resources. It offers functionalities such as resource discovery, resource management, resource sharing, and analytics. Primo VE is a next-generation library discovery platform that provides users with access to a central index of the library's collections. It offers a personalized and intuitive search experience, with features such as faceted searching, saved searches, and item recommendations. Both Alma and Primo VE are Ex Libris products. This case study fills the gap and provides a better understanding of how American and Canadian library leaders and administrators make decisions for their libraries and consortia. The pairing of Ex Libris's Alma and Primo products has become a widely accepted next-generation system due to its cloud-based model for managing both electronic and print resources. The findings of this study offer insights and lessons learned to help library leaders and administrators to make better decisions on their future technological change.

LITERATURE REVIEW

The growing user demand for electronic resources over the last decade has led libraries to make a rapid digital transformation to manage and deliver online library services. Consequently, system providers are hungry to develop the next-generation library systems. Organizations have started to adopt cloud computing as their infrastructure. A benefit of cloud computing is that local IT staff no longer need to handle hardware failures and software installation. Cloud computing streamlines processes and saves time and money. Additionally, cloud computing not only enables libraries to deliver resources and services in a network and a library community but also frees libraries from managing technology to focus on collection building, service improvement, and innovation. Therefore, libraries have started to migrate their client-based Integrated Library Systems (ILS) to cloud-based next-generation systems, often referred as LSPs. These LSPs can be connected with other web applications, increase collection visibility and accessibility, streamline workflows, reduce duplication of staffing and collections, and create a greener ecosystem for organizations.[4]

Library consortia have been playing vital roles in resource sharing, cooperative purchasing, discovery, user experience, and technical support. Many libraries migrate to a shared next-generation ILS or LSP by joining a consortium. Besides sharing common needs, participating

libraries are quite different with respect to their sizes, the kinds and numbers of resources they provide, services, priorities, and staffing. Although this could pose some challenges like cost sharing for participating libraries, workflow design, policy, and a collaboration model for libraries, libraries still benefit greatly from the shared catalog and enhanced metadata as well as cooperation on a global level through the product community such as ELUNA and IGeLU.[5]

The selection of a new system is not a small decision. Calvert and Read pointed out that some libraries turned to "sheep syndrome" of selecting what other libraries have bought due to the lack of software knowledge.[6] Their study suggested that a request for proposal (RFP) could be a part of the LSP selection process by providing a consistent set of vendor responses with a narrow scope, a formal statement of requirements for benchmarking, and a mechanism for vendors to compete. Gallagher advised considering existing contracts, financial resources, and RFPs before beginning a system assessment. He indicated that the expiration date of the current ILS and opt-out clauses of the existing contract could be the indicators of a go-live date. A price quote including a one-time implementation fee and a cost-benefit analysis of the current ecosystem compared to the vendor offer could provide a helpful document that envisions future library services.[7] In addition to an RFP, Yang and Venable also considered the library automation marketplace and needs of their own library when migrating from SirsiDynix Symphony to Alma/Primo.[8]

Gallaway and Hines embraced competitive usability techniques to test a set of standard tasks across multiple systems by using focus groups at Loyola University New Orleans to select a next-generation system.[9] They also collected anecdotal information and feedback on the system performance of the current library online catalog through a survey of library staff. This evidence-based decision-making process makes system selection in a rational manner. Manifold, on the other hand, proposed a principled approach to selecting a new LSP. He believed that system selection was a part of the continuing process of organizational change and needed to involve library staff and users throughout the process. Today's LSP systems can connect almost the entire range of library operations, from resource management and acquisitions to user request fulfillment and the integration of subject guides on research, teaching, and learning A system migration is much more than just a move to a new system; instead, it is a transfer to a new culture. He suggested the acquisitions process must start with educating participants on the features of various systems, methods of vendor assessment, the rules of contract negotiation, communication, and stress management. The success in system selection and implementation should be measured over the life span of the system to guide new decisions along the way.[10]

In addition to commercial products, some libraries are acquiring open-source software (OSS) that enables them to have a greater control over customization. The potential benefits of OSS include cost effectiveness, interoperability, user friendliness, reliability, stability, auditability, and customization. Koha, Evergreen, FOLIO, ABCD, WinISIS, NewGenLib, Emilda, PMB (PhpMyBibli) and WEBLIS are examples of OSS ILS/LSP products on the market.[11] When selecting and implementing an OSS solution, small libraries such as the Paine College Colins-Callaway Library, with a limited budget and small staff, chose a hosted open-source ILS (Koha) to obtain specific expertise and services at a reasonable price.[12]

Once a system is selected, the implementation process itself can be critical to the perception of overall system success. Lovins expressed concern about choosing a project management approach that is schedule-driven over results-driven. He also recommended organizing implementation

activities around the incoming system functionality. For a consortium-wide system migration, a "train-the-trainer" strategy was adopted in the training program, which mostly offers demonstrations instead of instruction to future trainers.[13] The program hardly met libraries' expectation for training.

Active staff participation in a system migration is key to a project success. Banerjee and Middleton reported that when library staff owned the migration process, fewer mistakes and greater satisfaction with the new system, as well as quicker troubleshooting of problems that did arise as a result of the migration, were observed.[14] Avery shared that the God's Bible College Libraries did an informal pre- and post-assessment of library users and staff to gather feedbacks on both legacy and target ILS. He recommended conducting a formalized pre- and post-evaluation of user satisfaction with the ILS.[15]

Stewart and Morrison observed that acquisitions workflows in a shared Alma environment must balance required consortial needs with local policies and procedures. The unmet training needs and the lack of an electronic resources management (ERM) module in Alma presented challenges for library staff to develop and manage Alma workflows. They argued that a two-year project cycle was super ambitious especially if the consortium size and variety of individual libraries involved were large and wide.[16] When migrating from Horizon to Symphony (both are SirsiDynix products), King Fahd University of Petroleum and Minerals based in Dhahran Saudi Arabia experienced a delayed implementation. Some unmet needs, such as a dramatic shift of workflows, user interface customization, and training support by a system provider or its parent company not matched by a local vendor, became hurdles for this project.[17] Although a new LSP including Alma/Primo and OSS empowers libraries to create unified workflows across functional modules, this feature requires a system user to have cross-functional roles to conduct these activities.[18]

When migrating from non-Ex Libris product lines to Alma/Primo, libraries may need to make tough implementation decisions. For example, the University of South Carolina migrated library data to Alma/Primo from Innovative's Millennium and EBSCO's Full Text Finder. When the legacy and target products are from different vendors, the system migration can be more complicated in communication, data mapping, data quality, and expected results of data migration. For the USC Library, the preexisting duplicate records for electronic resources should have been cleaned up before the migration.[19] Libraries should address their concerns about key activities during the implementation to get the best possible result. The Joint Bank Fund Library had a three-day onsite training in workflows in the middle of the project. It would be much more effective if the library had communicated with the vendor to reschedule the training at a later stage of the migration because library staff were not yet familiar with the LSP by the expected time.[20] The University of North Carolina at Charlotte migrated from OCLC's Worldshare Management Services (WMS) to Alma/Primo after migrating from Millennium to WMS four and a half years previously. The Atkins Library went through the second system migration because WMS modules did not meet their library's needs. Going through two system migrations in the span of five years was particularly costly and frustrated Technical Services staff spent more than half of their work time on data cleanup. Additional time for data cleaning, workflow design, and training was also needed after the migration to Alma.[21]

Fu and Fitzgerald studied the effect of LSP staffing models for library systems and technical services by analyzing the software architecture, workflows, and functionality of Voyager and

Millennium against those realigned in Alma, WMS (Worldshare Management Systems), and Innovative Sierra. They discovered that the workload of systems staff could be reduced by around 40 percent, so library systems staff could have additional time to focus on local applications development, the discovery interface, and system integration. In the meanwhile, the functionality of the next generation ILS provides a centralized-data services platform to manage all types of library assets with unified workflows. Consequently, libraries could streamline and automate workflows for both physical and electronic resources through systems integration and enhanced functionality. This change requires libraries to reconsider their staffing models, redefine job descriptions, and even reorganize the library structure to leverage the benefits of a new LSP.[22]

Western Michigan University (WMU) decided to reorganize its Technical Services department after the Alma migration was completed in 2015. After the Alma implementation, it was observed that staff spent 38 percent less time working with physical materials. The Systems Department also shifted its focus from back-end system support to front-end user and other new technologies. WMU consolidated fourteen departments into six and renamed Technical Services to Resource Management, composed of Cataloging and Metadata, Collections and Stacks, and Electronic Resources. The LSP administration was shared by four certified Alma administrators and one discovery administrator residing in the Resource Management department.[23]

Although researchers and library practitioners have studied ILS selection and implementation processes and the impact of migration on library operation and staffing, only the studies on the RFP and usability testing have focused on decision-making on the ILS selection. Today, library administrators and leaders face technological change more often while making a transformation to a digital business model. They should understand how decisions are made at different organizational levels when managing change. This study is to fill this gap and help library administrators and leaders to better prepare for future change through the following research questions:

- What is the decision-making process and what do libraries consider?
- How do libraries evaluate the migration project?
- What are the impacts of the system migration on library staffing and operation?
- What lessons have libraries learned from the system migration?
- What will libraries do differently for the future system migration?

METHODS

Researchers have adopted both qualitative and quantitative methods for studies about system migration. The literature indicates that both interviews and surveys have been employed to collect data for these studies.[24] A usability testing through a set of tasks across systems has also been utilized in a system selection.[25] A comparative analysis of vendor documents, RFP responses, and webinars has been applied in studying the impact of system migration on staffing models.[26]

In this research, the authors used a qualitative method through a survey to understand decision-making on system selection, procurement, and implementation.

Data Collection
The population for this study is those libraries that implemented or are planning to implement Alma. Through the ELUNA membership management site (https://eluna40.wildapricot.org/), the

authors identified 1,440 libraries in the United States and Canada that use at least one Ex Libris product. With help from Sue Julich at University of Iowa Libraries, who manages the site, 1,150 Alma libraries were identified.

The authors also contacted Marshall Breeding, the founder and publisher of Library Technology Guides (https://librarytechnology.org/), and obtained a list of 1,134 Alma libraries in the United States and Canada. Comparing the Alma libraries acquired from the two different sources, they eventually identified 1,079 libraries from the United States and 55 libraries from Canada as eligible survey-participating libraries.

The authors developed a 13-question survey in Qualtrics. This questionnaire aimed to help participants recall the project experience and offer them an opportunity to self-reflect and give feedback. The survey was distributed via email to the eligible libraries. A few email reminders were sent out to encourage participation. Upon the closure of the survey, 291 libraries (27%) completed the survey completely.

Data Analysis
Qualtrics generates data analysis and reports. The authors conducted a text analysis by categorizing responses to those open-ended survey questions to clarify the characteristics of each response manually and then presented and analyzed data in Microsoft Excel.

FINDINGS

Part I: Library Profile & Background Information
The participating libraries have diverse profiles in terms of size and geographic location and reflect the point of views from small library to library consortium. Remarkably, during the survey, the authors received requests for a complete survey questionnaire so that respondents could coordinate and provide the complete and accurate data on behalf of their libraries.

Respondents
The majority of the respondents in this survey were deans, directors of the library or university librarians, and system librarians (see table 1). Also, there were a wide variety of other position titles across cataloging, acquisitions, technical support, and reference, who participated in the survey (see table 2).

Participating Libraries
Geographic Location
The participating libraries were located in the United States and Canada, and the majority of them were American libraries (see table 3). The American libraries were distributed in 36 states, while the Canadian libraries came from 4 provinces.

Table 1. The position titles of the respondents

Position title	Percentage
Dean/Director of the library/university librarian	35%
System librarian	23%
Other	42%

Table 2. The other position titles of the respondents

Other position titles	
Assessment librarian	Head of metadata and cataloging
Asset management librarian	Head of technical services
Assistant director	ILS coordinator
Associate dean	Instructional technology librarian
Associate director	Lead librarian
Associate law librarian	Library technician
Associate university librarian	Library technology manager
Cataloging and metadata librarian	Manager of archives & access services
Cataloging librarian	Manager of digital services
Collections librarian	Manager of technical support
Consortial executive director	Metadata librarian
Deputy director of the library	Project director
Director of library systems	Public services librarian
Director of library technology services	Reference librarian/webmaster
Director of technical services	Resource description and access librarian
Electronic resources librarian	Solutions architect, Alma implementation project manager
Head librarian	Supervisor for access services
Head of acquisitions	Technical services and instruction librarian
Head of collection management	Technical services librarian
Head of library systems	Technical services section head
Head of library technology services	Technology manager

Table 3. The geographic locations of the libraries

Country	Percentage
United States	92%
Canada	8%

Library Size

The libraries served a wide variety of student sizes, ranging from less than 1,000 to over 50,000 students (see table 4). The smallest library had only 199 students while the largest library system or consortium had 482,000. The number of employees in those institutions ranged from less than 1,000 employees to over 20,000 faculty and staff (see table 5). The smallest institution may only have 10 employees, while there were three larger institutions with over 50,000 faculty and staff.

Table 4. Student population (number of FTEs)

Student population (number of FTEs)	Percentage
<1,000	6%
1,000–1,999	14%
2,000–2,999	10%
3,000–3,999	8%
4,000–4,999	4%
5,000–5,999	6%
6,000–6,999	4%
7,000–7,999	6%
8,000–8,999	4%
9,000–9,999	1%
10,000–14,999	9%
15,000–19,999	8%
20,000–29,999	6%
30,000–39,999	5%
40,000–49,999	3%
50,000+	4%

Table 5. Faculty and staff population (number of FTEs)

Faculty/staff population (number of FTEs)	Percentage
<100	9%
100–499	25%
500–1,000	17%
1,000–1,999	14%
2,000–2,999	7%
3,000–4,999	12%
5,000–9,999	9%
10,000–19,999	4%
20,000+	5%

Library Type
The majority of the libraries were single campus libraries; some were part of a multicampus library system or consortium libraries (see table 6). The other types of libraries may include single campus libraries serving more than one institution or location, central offices of a consortium, part of a statewide system, or independent libraries involved in consortium purchase and implementation of Alma.

Table 6. Library type

Library type	Percentage
Single campus library	45%
Part of a multicampus library system	24%
Part of a consortium	26%
Other	5%

Previous Integrated Library System (ILS)
The majority of previous ILSs used by the participating libraries were Voyager, Aleph, Millennium, and Sierra (see table 7), and their vendors were Ex Libris, Innovative Interfaces, Inc., and SirsiDynix (see table 8). Thirty-seven percent of libraries reported that they had used their previous ILS over 20 years before they planned to migrate or migrated to Alma (see table 9). Also, one-fifth of libraries indicated that prior to Alma, it was their first time to adopt an ILS. Therefore, this was their only experience in system migration (see table 10). All libraries used Cataloging, Circulation, and OPAC modules in their previous ILSs, and they also used other modules (see tables 11 and 12).

Table 7. The previous ILSs

The previous ILS	Percentage
Voyager	29%
Aleph	24%
Millennium	16%
Sierra	12%
Symphony	6%
WorldShare Management Services	3%
Horizon	2%
Workflows	2%
TLC	1%
Clio	1%
Evergreen	1%
Surpass	1%
The Library Corporation	1%
Other	3%

Table 8. The previous system vendors

The previous ILS Vendor	Percentage
Ex Libris	49%
Innovative Interfaces, Inc.	28%
SirsiDynix	11%
OCLC	4%
Endeavor	1%
TLC	1%
Surpass	1%
The Library Corporation	1%
Other	5%

Table 9. Years with the previous systems

Years with the previous system	Percentage
3	1%
4	1%
5–9	7%
10–14	18%
15–19	27%
20+	37%
Unknown	9%

Table 10. Whether the previous systems were the first ILSs

Was it your first ILS	Percentage
No	72%
Yes	20%
Unknown	7%

Table 11. Modules used in previous ILS

Modules used in previous ILSs	Percentage
Cataloging	100%
Circulation	100%
OPAC	100%
Serials	77%
Acquisitions	76%
Course Reserves	64%
Interlibrary Loan	28%
Other	9%

Table 12. Other modules used in previous ILSs

Other modules used in previous ILSs
Analytics
Booking
Course Reserves
Discovery System
Electronic Resource Management
eReserves
INN-Reach
Licensing

Part II: Implementation Process
Alma Modules/Functions
The majority of libraries reported that they will implement or have implemented the following Alma modules: Fulfillment, Primo/Primo VE, Resource Management, and Acquisitions (see table 13). Some libraries mentioned that they also used Summon to replace Primo/Primo VE as they had used it before the system migration.

Table 13. Alma modules/functions implemented

Alma modules/functions implemented	Percentage
Fulfillment	100%
Primo/Primo VE	93%
Resource Management	92%
Acquisitions	84%
ERM (Electronic Resources Management)	77%
Course Reserves	73%
Network Zone	50%
Interlibrary Loan	40%
Digital Collections	21%
Other	8%

Selection Process

RFI and RFP
When asked if an RFI (request for information) was involved, more than half of the libraries responded with a confirmative answer (see fig. 1). About half of the libraries reported that they did not conduct a system functionality survey to collect information from library users and colleagues (see fig. 2). More than half of the libraries indicated that the RFP (request for proposal) process is required for the system migration (see fig. 3). There were a variety of reasons why for those libraries who did not conduct the RFP process (see fig. 4), such as an RFP may not be necessary when migrating systems to the same vendor, there was no increase in expenditure, or the expenditure did not reach a budget threshold (e.g., less than $100,000), or the previous contract stipulated it if upgrading to a new product with the same vendor. Another reason was that libraries might have an existing relationship with vendors and would like to continue using

their products. Some libraries were given authority by the university administration and library directors to handle the negotiation, or they thought an RFI offered sufficient information to make this decision. Other libraries had no choice in conducting an RFI or RFP process for reasons such as their system was outdated and they had to migrate, the decision was made by consortium, or Alma was their sole source procurement.
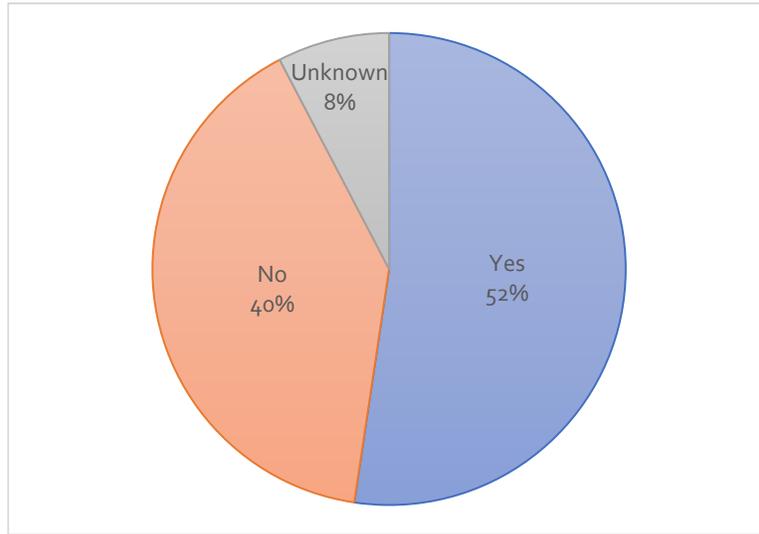
Figure 1. Whether an RFI (request for information) was involved.

Figure 2. Whether a system functionality survey was conducted.
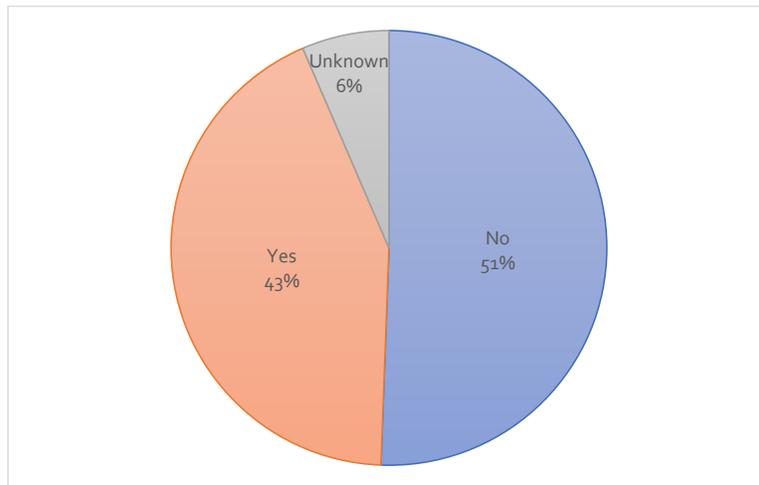
**Figure 3. Whether an RFP (request for proposal) was involved.**
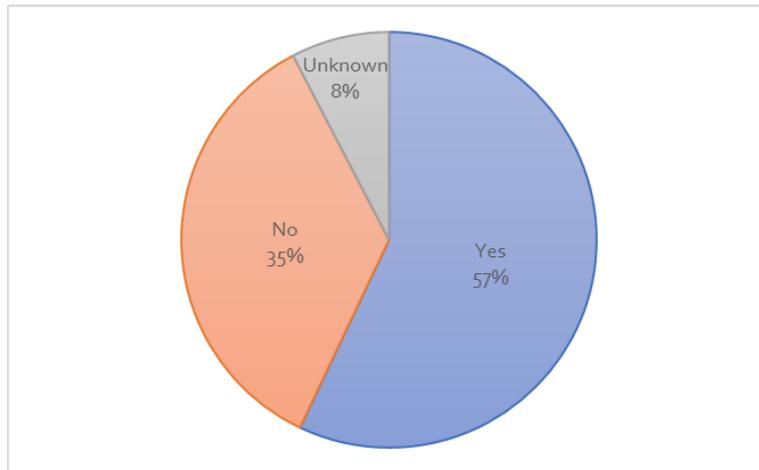
Figure 4. The rationales for libraries who did not conduct the RFP.
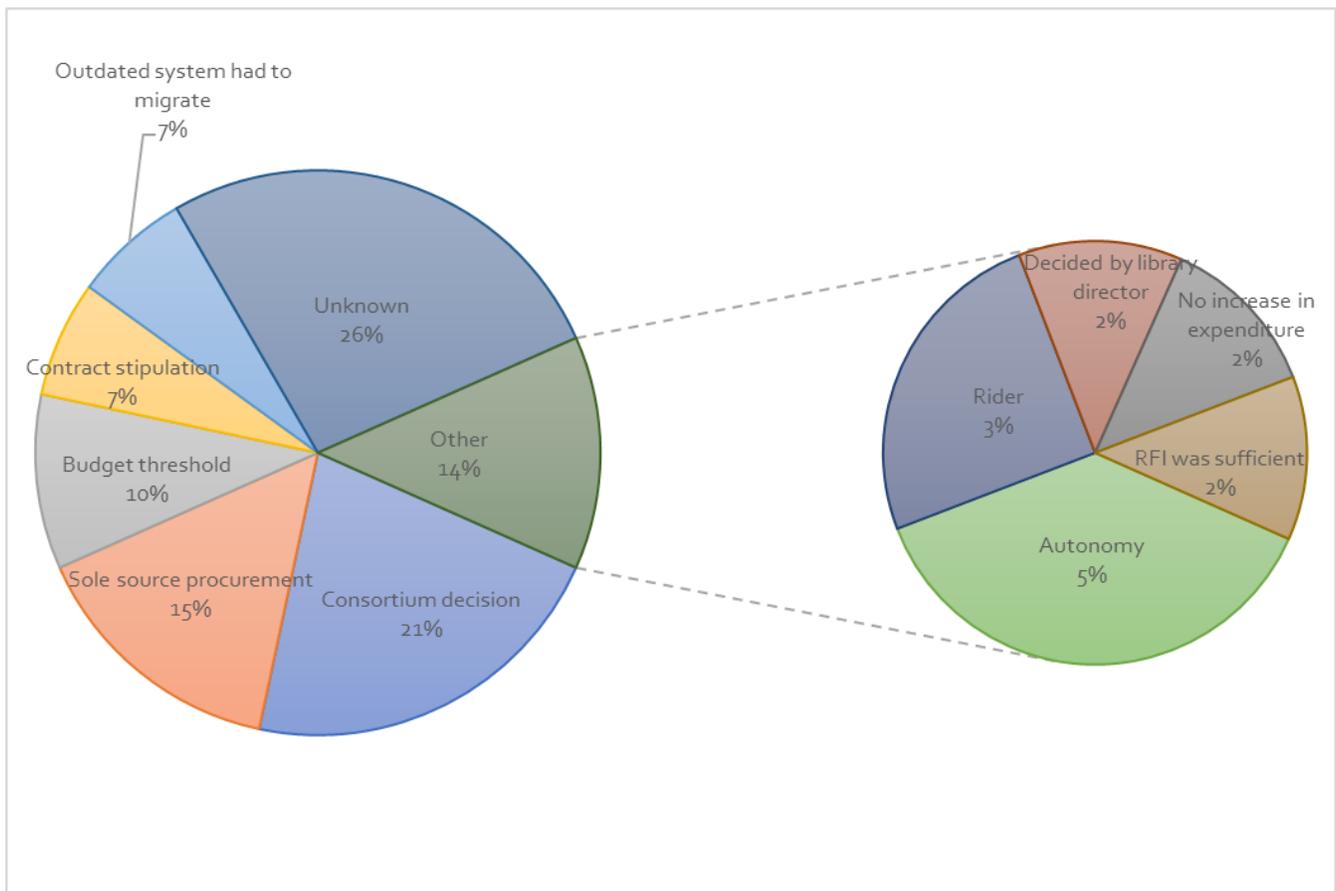
Decision-Making

The authors found that the common roles involved in the decision-making process included library dean/director, Alma local implementation team, and Alma project working group (consortium) (see fig. 5). Some libraries indicated that their system migration decision was made by university executives (provost, VP finance, CIO, and CFO), campus IT, AUL for library technology, or all librarians/staff. One library reported that the dean of Arts, Languages & Learning Services made the selection decision instead of the library or librarians.

**Figure 5. The decision makers.**
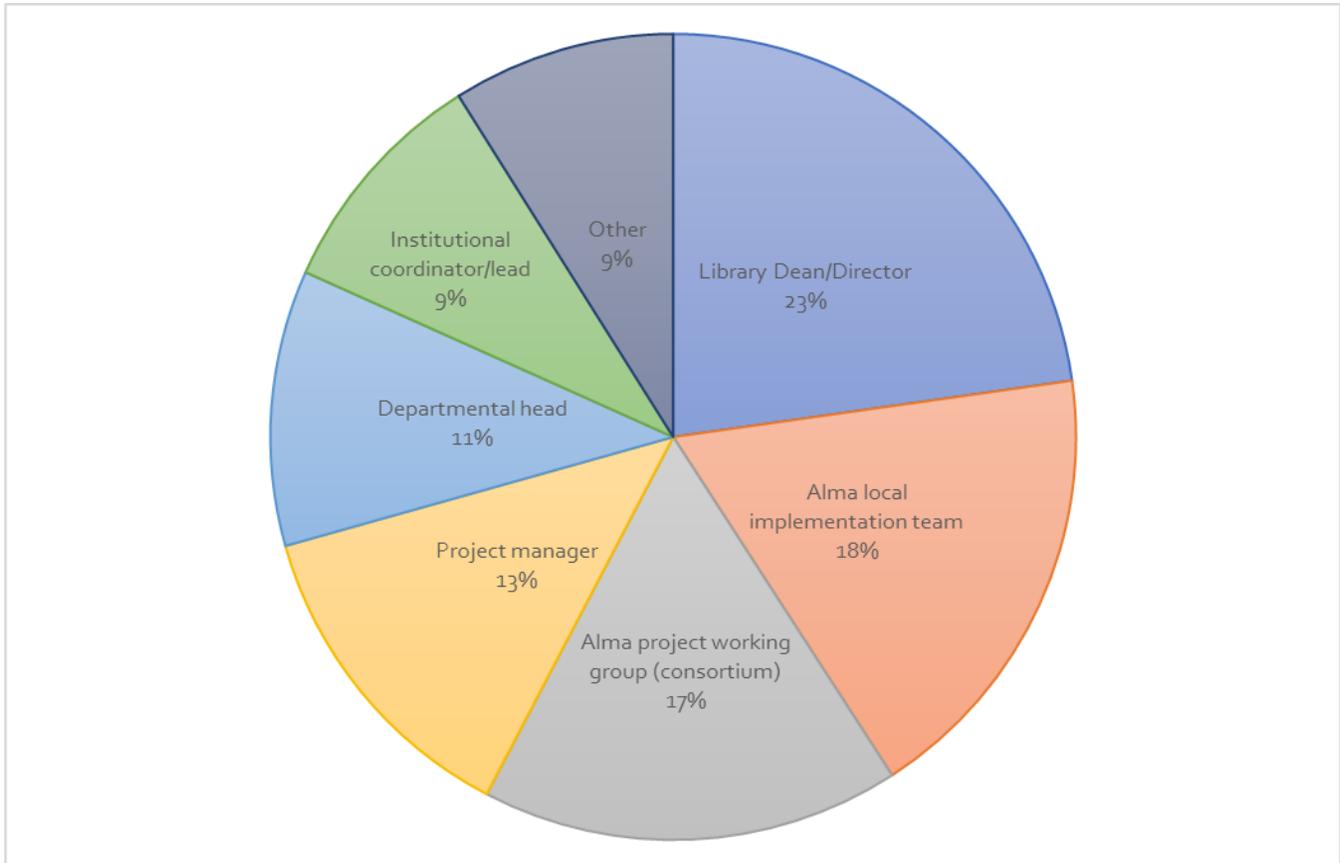
Important Factors for System Selection

The authors found that the four most important elements to consider for system selection were budget reality; electronic resource management (ERM), bibliographic, and authority control; discovery layers (Primo, Primo VE); and cloud hosted (see table 14).

Table 14. The important factors for system selection

Important factor for system selection	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The budget reality	3%	6%	11%	34%	47%
The number of libraries adopted	7%	7%	27%	40%	19%
ERM, bibliographic, & authority control	2%	2%	17%	38%	41%
Discovery layers (Primo, Primo VE)	6%	4%	13%	27%	50%
The analytics/reporting functionality	4%	6%	15%	41%	35%
Cloud hosted	3%	3%	12%	36%	47%
The campus IT infrastructure & its ecosystems	8%	12%	31%	31%	18%
Integration with other ERPs	12%	15%	30%	33%	10%
Customer support & satisfaction	4%	6%	21%	37%	31%
System user training programs	5%	11%	24%	38%	21%

Figure 6. The data migrated to Alma.
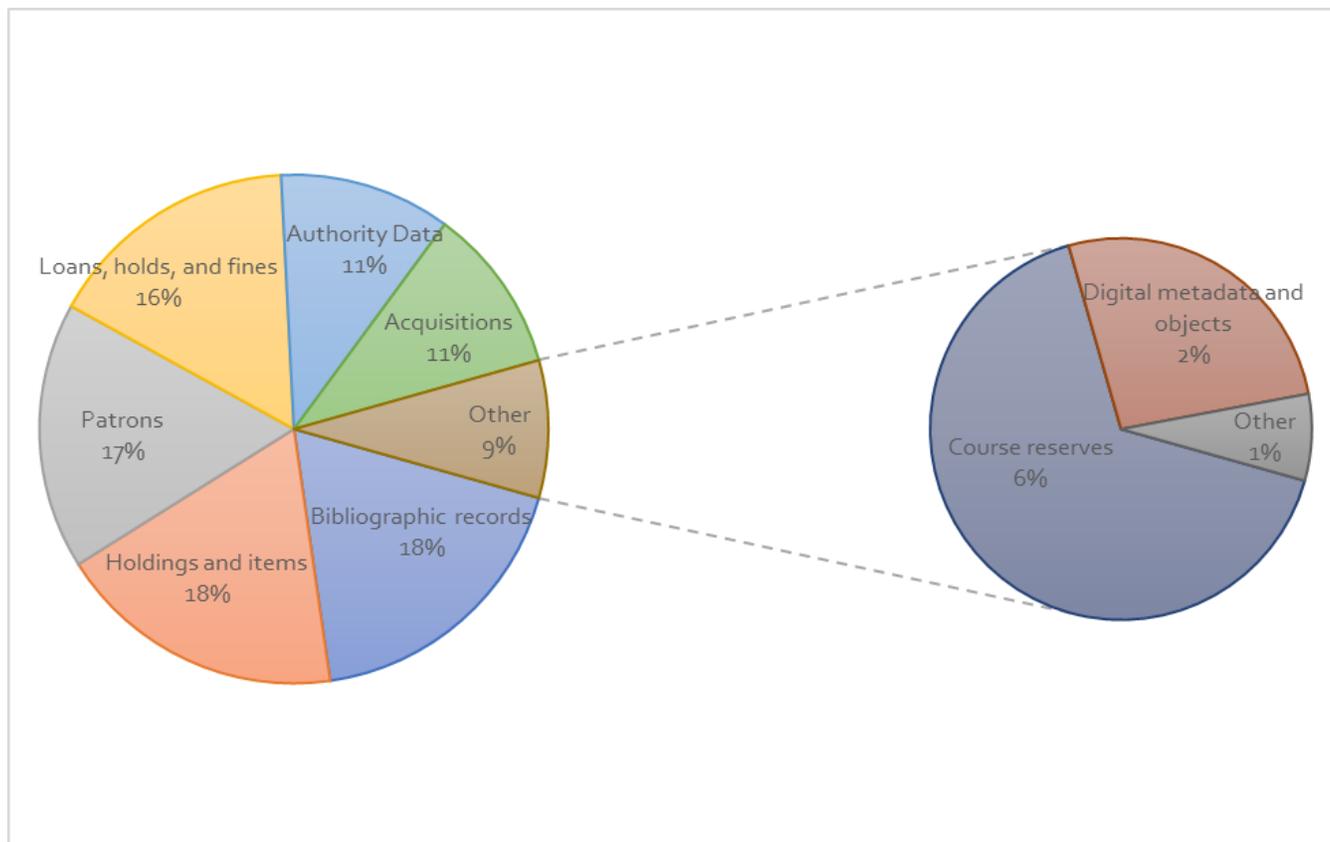
Data Migrated
The most common types of data migrated to Alma were bibliographic records, holdings and items, patrons, and circulation data (see fig. 6). Some libraries reported that they also migrated other types of data including vendor lists, e-resource data, all available data types, etc.

Discovery Service
The survey asked if there were any libraries that migrated to Alma and did not choose Primo/Primo VE for their discovery service. Nine libraries reported they were in this case. Four of them used Summon, four chose EBSCO Discovery Service, and one adopted their locally developed product. When asking the reason for their choices, the nine libraries indicated that they would like to stay with the existing discovery service. Additionally, two of the libraries stated that a budget limitation was a part of their reasons, and one library thought the better discovery service for users was the rationale.

Part III: Feedback on Alma Migration
System Migration Evaluation
The majority of libraries reported that they did not conduct a formal post-migration evaluation. Half of the libraries thought the migration achieved their project goals, or met the needs of library operations (acquisitions, cataloging, fulfilment, discovery, etc.) (see fig. 7).

Figure 7. Whether a formal post migration evaluation was conducted.
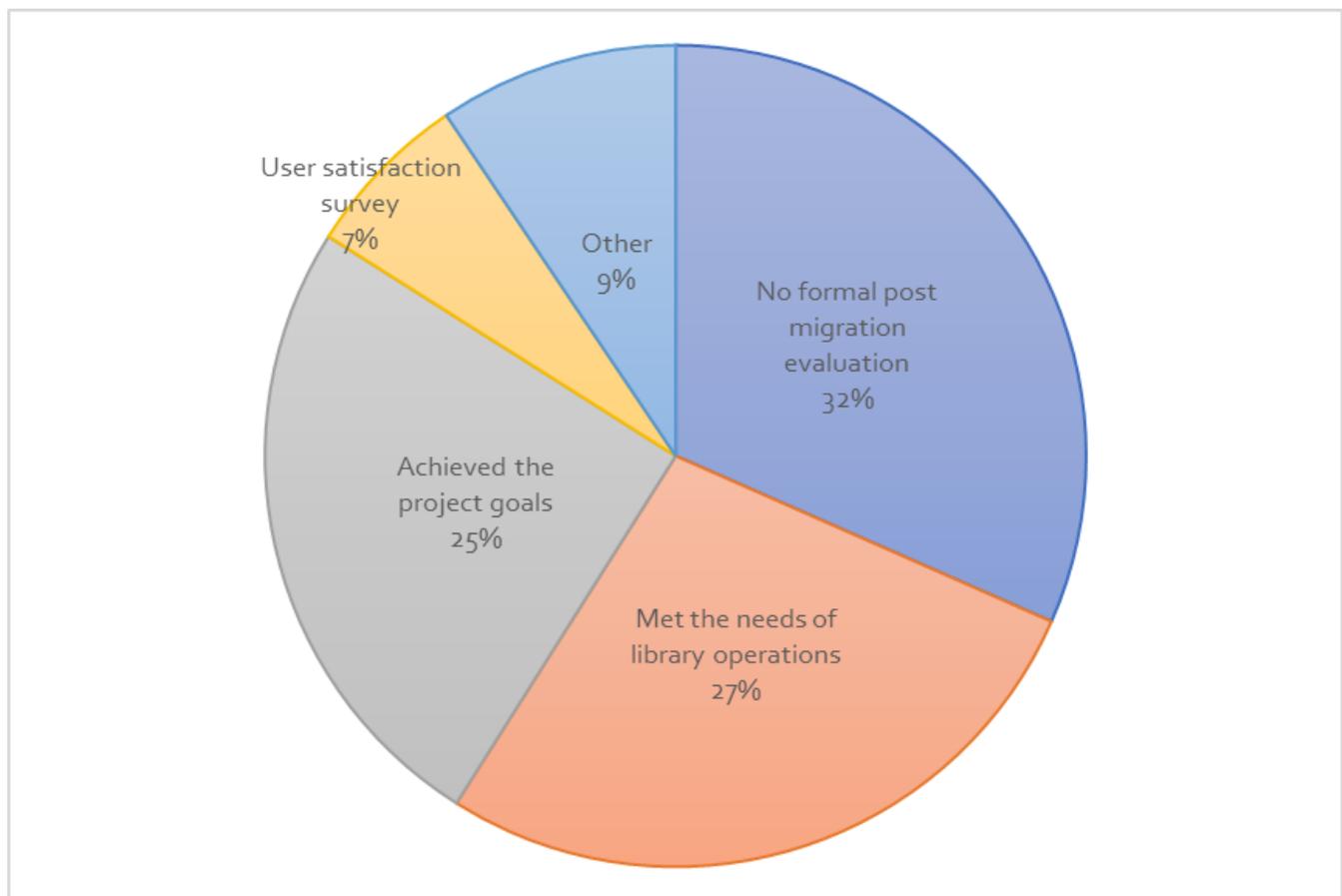
Some libraries also provided their own migration evaluation, including RFP mandatory requirements signoff, availability study, focus groups with library staff, usability testing with students and faculty, feedback and cross-checking with consortium, debrief of library staff, etc. Some only did an informal evaluation, which turned out to be not handled well or not very satisfactory. For example, one consortium did a survey on the migration and provided the feedback to Ex Libris for improvement. Other libraries reported that they had not done the evaluation as they did not start the migration process, were still in the migration stage, that an evaluation was not a part of the decision-making process, or that Alma was offered as a free product because of their consortial partnerships.

Valuable Lessons Learned
The authors asked what were the most valuable lessons the libraries had learned from the migration project, and how they would implement the migration differently if they had a chance to do it again. The most valuable lessons concentrated on training, communication, engagement, implementation process, and data cleanup/preparation (see fig. 8). These lessons are shared in greater detail in the discussion section.

Figure 8. The valuable lessons learned from the migration project.
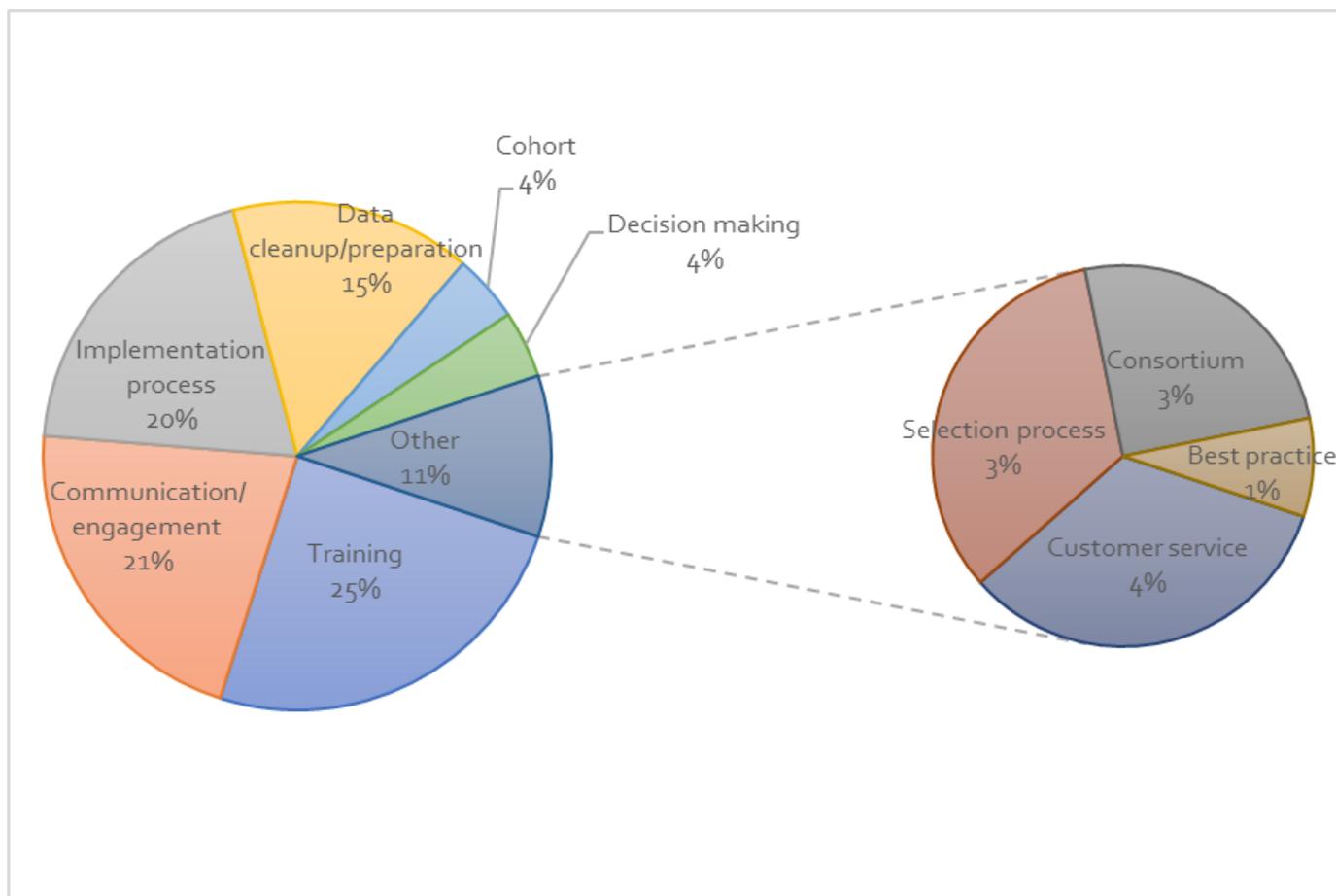
Prospective Migration

When asking if libraries would consider working with Ex Libris again if they migrated to a new system in the future, 70 percent of libraries gave an affirmative answer, but some libraries indicated that they would seek other alternatives (see fig. 9). When asked how likely libraries would be to consider implementing an open-source ILS, the majority of libraries conveyed that they would not consider open source; only 7 percent of libraries would consider it (see fig. 10).

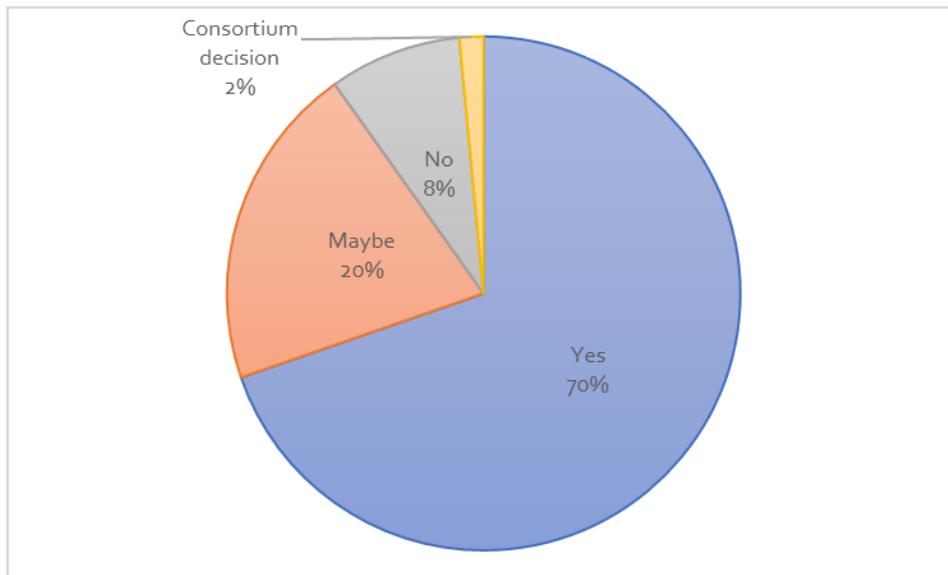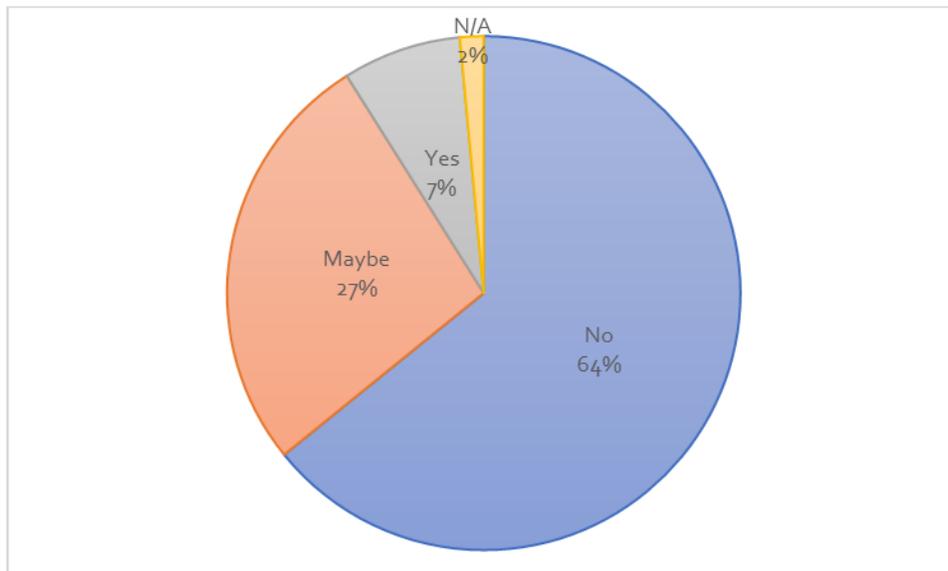**Figure 9. Whether Ex Libris products would be considered in the future.**

Figure 10. Whether an open-source ILS would be considered in the future.

DISCUSSION

The authors examine the above findings further through the lens of the research questions raised in the literature review section.

The Decision-Making Process and Factors Considered
The survey indicates that both RFI and RFP are important for a selection process. Fifty-two percent of the libraries conducted an RFI and 57 percent required the RFP process for the system migration. Interestingly, even with a variety of sound reasons such as no increase in expenditure, within the budget threshold, existing relationships with vendors, sole source procurement, consortium decision, riders, etc., some libraries still did not roll out the RFP process. Besides RFI and RFP, 43 percent of libraries went through a system functionality survey to collect information from library users and colleagues.

For most libraries, the library dean or director, Alma local implementation team, or Alma project working group of a consortium were involved in the decision-making process. In some cases, university executives such as provost, VP finance, CIO, CFO, campus IT, and associate dean or associate university librarian for library technology made a collective decision. In a rare case, the dean of Arts, Languages & Learning Services made the call for the system selection.

When considering system migration, many factors can be important. This survey shows that libraries mainly consider budget reality; ERM, bibliographic, and authority control; discovery layers; and cloud-hosted systems. It is interesting that most libraries would like to move to a cloud-based system that has better functionality for discovery and electronic resources management. The survey also reveals that library administration needs to find a way to offset the cost increase of the system migration. The lack of comparable system or service offerings in the market also contributes to the decision on system selection.

Project Evaluation
Project evaluation provides important feedback from both system users and system providers and a great opportunity for libraries to learn. The findings indicate that many libraries do not have a formal assessment process. Some consortia have conducted surveys and provided feedback to Ex Libris, but no response reported to the feedback from Ex Libris. Both libraries and system vendors have lost the opportunity to learn and improve project management. For example, well-documented complaints on dissatisfaction with Ex Libris training have not been effectively addressed. Some libraries believe a demonstration-focused training model does not provide the same experience as onsite training offers. Many libraries have had trouble with acquisitions workflows. The EOCR (electronic order confirmation record) and EDI (electronic data interchange) processes are standard practices in libraries today to generate order records and create invoices automatically and should be a part of implementation contract to ensure that libraries can operate appropriately after a new system goes live.

It is time for both libraries and system providers to consider a formal project assessment as a part of system migration down the road. Libraries will not do better if they do not improve today. Libraries cannot improve if they do not know where previous projects have gone wrong. A better way to learn from mistakes is project assessment.

Impacts on Library Staffing and Library Operation
Some libraries reported that insufficient staffing over the system migration has created additional problems and hardships. Some library departments have been stretched very thin in order to work on the migration project in addition to their regular operational duties. However, about one-third of survey-participating libraries have reported that meeting the needs of library operation including acquisitions, cataloging, fulfilment, and discovery is a criterion of project evaluation. The lack of dedicated LSP project migration staff creates a challenge for system migration. Most importantly, additional staffing time and technical capacity are important factors that decide if libraries could fully take advantage of the functionalities of a new system. Libraries might manage the system migration better by hiring additional technical staff on a project basis to handle technical aspects if staff cannot be released from library operation to focus on the migration project.

The system integration and unified automated workflows of a modern LSP can enable libraries to run their operations more efficiently. Particularly in a shared environment or network, libraries could share bibliographic records for general collections wider and deeper, which could dramatically reduce the need for both original and copy cataloging. System staff no longer need to install or upgrade proprietary software and maintain servers in house. These changes might cause job insecurity for some library staff. It is critical for library leaders to make adjustments to some job responsibilities or develop new skills to meet new demands. This requires library administration to create a culture of embracing change, learning, and collaboration. Staff can take the advantage of a new system by being curious and reassessing previous workflows. Library administration could create a flexible structure to encourage learning and collaboration across departments.

Lessons Learned
Many libraries shared valuable lessons they learned from the migration projects. Those lessons concentrate on training, communication and engagement, implementation process, and data cleanup and preparation.

Training
Many libraries expressed dissatisfaction with the training provided by their vendor. For example, libraries moving to Alma reported that Ex Libris could have focused more on in-person, post-migration training. As it was, staff felt undertrained because they had access only to online training before the libraries had access to their own data in Alma/Primo. Additionally, Ex Libris did not have regular trainers for a particular library, so there was less continuity across training sessions than there could have been.

Some suggest that Ex Libris do a concentrated several-day initial training for migration so that libraries have a solid overview of the entire system before data exports for testing loads, and then delve into a detailed weekly training that includes more library staff. It seems a good idea to schedule more training sessions after implementation because libraries may not know how the system functions during the implementation period.

In an ideal world, libraries would put more contractual obligations on Ex Libris to train staff more thoroughly. After all, libraries need to hold Ex Libris more accountable for project outcome. For consortium libraries, they should insist that Ex Libris provide specialized individual trainers and technical contacts. Attending group training sessions conducted by a variety of different Ex Libris

trainers does not work well in large migration projects. Ex Libris needs to train the library staff rather than focusing on training the consortium support staff and expecting them to do most of the staff training. Ex Libris indeed carries a variety of training webinars that are free; however, for bespoke training or intimate training sessions, they charge their customers. A barrier for many libraries is that they just cannot afford to pay more on these bespoke training sessions so they depend on other in-house training and best practices (e.g., work groups, training committees, in-house power users, etc.) to train/manage the training needs of their library personnel.

Communication and Engagement
Many libraries express that communication is extremely important and buy-in from stakeholders at all levels is critical to the migration project's success. Investing the initial time to have all stakeholders onboard will pay off. Blocking off time for weekly meetings with involved staff and Ex Libris is key. Some suggested asking more questions and seeking to understand the functionality of the new system more deeply. For consortial libraries, librarians can become much closer to each other and learn to seek out and receive help from one another in the ways that they might never do before. The networking can be an invaluable source for mutual support going forward.

Some libraries reported that due to the lack of communication, an overly sudden decision for the implementation timeline was made at the legislative level. Information regarding requirements and expenses was not fully clarified before the process began and came as a surprise during the migration. The whole process felt very rushed by the vendor with insufficient trainings, which turned out to be very dissatisfying.

Implementation Process
A system migration is complex and requires a great deal of time, institutional resources, and staff. Some key processes needed to be better prepared in advance, such as staff trainings, project plans and major milestones, system analysis, customer inputs for implementation and configuration, data cleanup, physical to electronic processing (P2E), source data extraction, validation and delivery, workflow analysis, fulfillment network, authentication, third-party integrations, data review and testing, go-live readiness checklist, etc. In practice, the migration was often more time- and resource-intensive than expected, meaning that libraries found it difficult to complete their part of the process in the contractually-specified time. Libraries should clear the decks of core staff to focus on migration, and make sure there are no other major projects occurring at the same time. If staff have insufficient time during the migration window, libraries need to hire temporary experienced staff for the project. This investment will benefit library operation in the long run. The implementation team members should have more dedicated time to be trained so that the library staff are well prepared and knowledgeable in the areas in which they work. It is wise to clean up data as much as possible prior to migration. It would be ideal if the existing workflows were fully documented with diagrams so that it would be easier to determine what parts of the workflows need change.

Some libraries reported their migration happened during the pandemic with state-issued stay-at-home orders in force. It was extremely stressful juggling all of the changes for the library while keeping up with system migration. Ideally, it would be better to avoid doing the migration during a pandemic and postpone the migration. But if libraries have no other choices, one benefit is to take advantage of closures for cutover days. The stress of the implementation and trying to get

things done may cause frustrations to boil over. It is advised to manage these situations by adding additional support where needed and by always ensuring that communication is a top priority so that any confusion is kept to a minimum.

For consortial libraries, it is important for individual institution members to have their own project managers. The consortial libraries would have tried to standardize more configurations across the consortia, like user groups, circulation settings, item types, etc.

Some libraries felt the whole migration process was rushed by the vendor, which turned out to be not very successful. Libraries should not let the vendor talk them into a compressed, several-month migration timeline; instead, they should spend more time in the preparation and implementation process.

Data Cleanup and Preparation
Although it is tedious and time consuming, many libraries suggested cleaning up data as much as possible prior to migration. More pre-migration data cleanup would avoid the post-migration mess. Some libraries recommended more stringent cleanup of catalog records, acquisitions data, circulation data, patron records, weeding, etc. It is important to make sure the cataloging structure matches the structure of the new system. Had they taken the data review stage more seriously and fully modeled the processes and workflows that would be needed, they would have had fewer data cleanup problems to address after the migration was complete.

Some libraries cautioned that Alma's P2E (physical to electronic) migration process was more complex than anticipated. They stated that the P2E conversion did not work as it should have, and Ex Libris should do a better job in the future. Due to misalignment of source and target collections, the P2E process resulted in a large cleanup after the migration. A number of libraries would have asked more questions about what data was migrated and to where. Ex Libris had migrated data that should not have been migrated. As a result, a messy system became a reality.

Planning for Future System Migrations
When asking what libraries will do differently for a future system migration, many provided very interesting insights. Some libraries believed that the system migration put library leadership in a difficult position. They needed to engage all library employees in decision-making and provide staff with the resources they needed to navigate change, experience the vulnerability of learning a new system, and even have difficult conversations with colleagues. At the same time, library leaders are accountable to their parent organizations and subject to budget pressure and mandates to follow procurement processes, which are geared around efficiency and hierarchy rather than promoting democratic decision-making and self-governance.

Many libraries expressed a concern about training. They stated that they would demand a separate contract for training in the future and put more contractual obligations on system providers to train staff more thoroughly. They would spell out in greater detail what a successful migration would consist of to hold Ex Libris responsible for outcome. During the bidding process, library staff should be less distracted by smooth presentations but ask difficult questions about system functionality.

Another concern is about the pricing. One early adopter of Alma stated that they learned the risks, rewards, and excitement of helping with a developing product as they felt Aleph was a dead end

and did not see many other alternatives. They would have negotiated more strongly with Ex Libris on pricing considering the immaturity of the product and pricing model at the time of adoption. Some libraries felt they were not given competitive pricing, and their costs went up significantly, which constituted a large budget shift. Some small libraries believed Alma is too big for them, and OCLC might be more appropriate for their size of collections and materials. They realized they underutilized a very expensive system.

Some libraries preferred a customized implementation as opposed to the one-size-fits-all model Ex Libris offered. They stated that despite learning the new system, they found that the solutions Ex Libris offered for their implementation rarely worked. They would better off fitting in their own workflows with Alma (especially for budgeting). Ex Libris seems to be not ready to work with single-campus small colleges. Other libraries reported that they had multiple people in a project management role, which created communication issues. They learned that in any future migration processes they should have a single project manager empowered to make decisions.

For consortium libraries, some libraries suggested taking advantage of cohorts of migrating institutions to share information, issues, and raise common questions. They would have made some local decisions instead of simply going with the consortiums. One consortium experienced a major difficulty that the group implementation took place in different countries. The time difference with their implementation team had added an additional dimension to project management. They would have done an individual migration instead of a group migration since they had a very complex institutional structure.

Some libraries strongly recommended open-source systems as well. They believed that the trend toward vertical consolidation of vendors is not healthy for the library system market in the long run. With mergers and acquisitions, gigantic companies are formed and might over-control the market and pricing.

CONCLUSIONS

Decision-making on the selection, procurement, and implementation of a new LSP is a process that requires gathering information and seeking input from library administration, experts, and different levels of stakeholders in a systematical way to ensure the system quality, fitness, and a successful implementation. The findings suggest that libraries should adopt an RFI/RFP (request for information/proposal) or system functionality survey as the basis for system selection. Budget, resource discovery, and electronic resources management are the most important factors to be considered in an ILS selection. Staffing time and technical capability must be addressed before implementing a new system to enable libraries to manage user expectations. Insufficient staff and the lack of technical skills could affect the realization of the benefits of a new system. Technological change can lead to the shifts of staff job responsibilities and lead to a new way of working together. It is important for library administration to address organizational change when making technological change. A formal project assessment is essential for libraries and system providers to learn and improve collectively. Open-source systems could open doors for libraries to seek more customized and affordable systems.

Research Limitations
Like all research studies, this study has limitations that provide opportunities for further investigations. Firstly, because we asked for responses from individuals, not libraries, the findings

might be biased by participants due to individual experiences. Secondly, due to the limitation of time, space, and number of survey questions, reported data mainly focused on Alma libraries and could not cover migration experiences of libraries migrating to other products or all aspects of system migration. Further research would benefit the library community from interviewing participating libraries in a different size, type, and geographic location as well as different system providers.

Practical Implications
Every new system has its advantages and downsides. To help libraries fully take advantage of a new system, it would be helpful if vendors could evaluate training, physical to electronic (P2E) process, and system affordability. Providing training after a system goes live will help libraries implement workflows effectively and give staff better experience. P2E is crucial for ensuring that all relevant information is transferred and maintained in the new system. Vendors could address potential P2E issues before a system migration takes place so that libraries might approach data cleanup differently. It would be great if vendors could customize system modules or functionalities as needed by both small and large libraries. This will give libraries flexibility to invest in most needed library operations at different prices to make the system affordable. Customer services can be crucial for libraries to continue optimizing the new system down the road. Regularly seeking libraries' feedback can foster a positive customer relationship and benefit both libraries and vendors.

Acknowledgements

APPENDIX: SURVEY QUESTIONNAIRE

FIU | FLORIDA INTERNATIONAL UNIVERSITY

ADULT ONLINE CONSENT TO PARTICIPATE IN A RESEARCH STUDY

A Customers' Perspective: Decision-Making on System Migration

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SUMMARY INFORMATION

Things you should know about this study:

- **Purpose:** The purpose of the study is to understand how library leaders make decisions on system migration during technological change and the impact of these decisions on library operation and staff.
- **Procedures**: If you choose to participate, you will be asked to answer 12 multiple-choice questions and 3 open-ended questions.
- **Duration:** This will take about 15 to 20 minutes.
- **Risks**: There is little risk or discomfort from this research since you share your project experience anonymously.
- **Benefits:** The main benefit to you from this research is to self-reflect on the project and have an opportunity to share the project experience. We plan to publish our findings, which will bring potential benefits to you and the library community.
- **Alternatives:** There are no known alternatives available to you other than not taking part in this study.
- **Participation:** Taking part in this research project is voluntary.

Please carefully read the entire document before agreeing to participate.

CONFIDENTIALITY

The records of this study will be kept private and will be protected to the fullest extent provided by law. In any sort of report we might publish, we will not include any information that will make it possible to identify you. Research records will be stored securely and only the researcher team will have access to the records.

The following questions are for general analytical use only. Although Qualtrics does not collect your email address, please do not provide your personal identification indicators (PII) with your answers.

If PII appear in the responses, we will apply a data anonymization process to anonymize PII after the results are added into the final tally.

RIGHT TO DECLINE OR WITHDRAW

Your participation in this study is voluntary. You are free to participate in the study or withdraw your consent at any time during the study. You will not lose any benefits if you decide not to participate or if you quit the study early. The investigator reserves the right to remove you without your consent at such time that he/she feels it is in the best interest.

RESEARCHER CONTACT INFORMATION

If you have any questions about the purpose, procedures, or any other issues relating to this research study you may contact Jin Guo (jiguo@fiu.edu) or Gordon Xu (gordon.xu@njit.edu).

IRB CONTACT INFORMATION

If you would like to talk with someone about your rights of being a subject in this research study or about ethical issues with this research study, you may contact the FIU Office of Research Integrity by phone at 305-348-2494 or by email at ori@fiu.edu.

PARTICIPANT AGREEMENT

I have read the information in this consent form and agree to participate in this study. I have had a chance to ask any questions I have about this study, and they have been answered for me. By clicking on the "consent to participate" button below I am providing my informed consent.

<u>Consent to Participate</u>

Section I: Library profile and background information

1. Your title:

    a. Dean/Director of the library/university librarian
    b. System librarian
    c. Other   (Please specify: _____)

2. Describe your institution

    a. Location
        i.   US
        ii.   Canada
        iii. State

2. Total student and faculty population

    a. Total student population (number of FTEs) _____
    b. Total faculty population (number of FTEs)   _____

3. Information about your library

    a. Single campus library
    b. Part of a multicampus library system
    c. Part of a consortium
    d. Other   (Please specify: _____)

4. Previous ILS:

    a. The previous ILS name:
    b. The previous ILS Vendor:
    c. Years with the previous system:
    d. Was it your first ILS?   a. Yes   b. No

5. ILS modules in use prior to Alma migration: (Please check all that apply)

    a. Acquisitions
    b. Cataloging
    c. Circulation
    d. Interlibrary Loan
    e. Reserves
    f. Serials
    g. OPAC
    h. Other   (Please specify: _____)

Section II: Alma implementation process

6. Alma modules/functions implemented: (Please check all that apply)

   a. Acquisitions
   b. Resource Management
   c. Fulfillment
   d. Interlibrary Loan
   e. Course Reserves
   f. ERM
   g. Network Zone
   h. Primo/Primo VE
   i. Digital Collections
   j. Other   (Please specify: _____)

7. The system selection process

   - Was an RFI (request for information) involved?   a. Yes   b. No
   - Did you conduct a system functionality survey to collect information from library users and colleagues? a. Yes   b. No
   - Was the RFP (request for proposal) process required?
   - a. Yes, please specify the person/department that prepared for RFP. _____
   - b. No, please provide the reason why (e.g., budget cap less than $100K, etc.)_____

8. Who was involved in the decision-making process?
   - Alma project working group (consortium)
   - Alma local implementation team
   - Project manager(s)
   - Library dean
   - Institutional coordinators/leads
   - Departmental heads
   - Others (please specify _____)

9. What are important factors for system selection (5 points, weight/per response)?

- The budget reality
- The number of libraries adopted
- E-resource management (ERM), bibliographic, and authority control
- Discovery layers (Primo, Primo VE)
- The analytics/reporting functionality
- Cloud hosted
- The university/college IT infrastructure and its ecosystems
- Integration with other ERP (enterprise resource planning) systems/platforms
- Customer support & satisfaction
- System user training programs

10. What data was migrated (please select all that apply)?

- Authority data
- Bibliographic records
- Holdings and items
- Patrons
- Loans, holds, and fines
- Acquisitions
- Course reserves
- Digital metadata and objects

11. Please skip this question if you use Primo/Primo VE. If you chose non-Ex Libris products for discovery service, please specify the product____, and select the possible reason below:

- Budget limitation
- Stay with the existing discovery service
- Others

Section III: Feedback on Alma migration project.

12. How did your library evaluate the system migration project?
- No formal post-migration evaluation
- User satisfaction survey
- Achieved the project goals
- Met the needs of library operations (acquisitions, cataloging, fulfilment, discovery, etc.)

13. Open-ended questions
- What are the most valuable lessons you have learned from this project? If you had a chance to do it again, how would you implement the migration differently?

  ☐

- Would the library consider working with Ex Libris again if it were to migrate to a new system in the future?

  ☐

- How likely is it that this library would consider implementing an open-source ILS?

  ☐

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