Reflections on Library Service Platform Selection from the User Library Experience Perspective: Postprint

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Abstract

[Purpose/Significance] Traditional Integrated Library Systems (ILS) are being replaced by Library Services Platforms (LSP), and many academic libraries in China are dedicated to evaluating ILS and investigating LSP. However, with diverse LSP products available, libraries face difficulties in determining which LSP best suits their needs. This analysis of the current market landscape and development status of mainstream LSP products aims to provide a reference for academic libraries planning to transition from ILS to LSP. [Method/Process] Based on the experiences and perceptions of foreign academic libraries using LSP, this study analyzes, evaluates, and summarizes the major library services platforms in the market. [Results/Conclusion] Due to consolidation in the ILS/LSP market, the number of LSP vendors is decreasing, with only Alma, Sierra, and OCLC WMS being fully implemented at present. Additionally, the launch of the open-source project FOLIO offers libraries an alternative approach. However, this single integrated library services platform is not the solution; rather, a library ecosystem based on platforms and composed of several loosely coupled components represents the true next-generation services platform for libraries. Independent innovation and the development of an open services platform suitable for the domestic library environment is imperative.

Full Text

Preamble

Title: Reflections on Library Services Platform Selection from the Perspective of User Libraries
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Abstract

[**Purpose/Significance**] Traditional Integrated Library Systems (ILS) are being replaced by Library Services Platforms (LSP). Many academic libraries in China are evaluating their ILS and investigating LSP options. However, with diverse LSP products available, libraries face difficulty determining which platform best suits their needs. This paper analyzes the market landscape and development status of mainstream LSP products to provide reference for academic libraries planning to migrate from ILS to LSP. [**Method/Process**] Based on the experiences and perceptions of overseas academic libraries using LSPs, this study analyzes, evaluates, and summarizes major library services platforms. [**Result/Conclusion**] Due to consolidation in the ILS/LSP market, the number of LSP vendors is shrinking, with only Alma, Sierra, and OCLC WMS being fully implemented. Additionally, the open-source FOLIO project offers an alternative approach. However, a single integrated system is not the solution; rather, a platform-based library ecosystem composed of loosely coupled components represents the true next-generation library services platform. Independent innovation to develop an open services platform suitable for domestic library environments is urgently needed.

Keywords: library services platform; electronic resource management; Alma; Sierra; WMS; FOLIO

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1. Development of Overseas Library Services Platforms

Since their emergence in 2011, Library Services Platforms (LSP), also known as next-generation library systems, have attracted widespread attention in the field. Research on next-generation library systems has become a hot topic. Domestic research on next-generation library systems falls into two main categories: (1) Studies of overseas next-generation library systems, primarily introducing their characteristics and the development status of mainstream products. Yin Hong et al., considering IT development trends and libraries' management and service needs, proposed that next-generation library systems should possess resource management, workflow management, and resource discovery functions [1]. Chen Wu et al. compared seven mainstream library services platforms on the market at the time from perspectives including architecture, functionality, and management, providing reference for domestic next-generation library system selection and migration [2]. Bao Ling et al. introduced the R&D status, development approaches, deployment methods, functions, and other features of next-generation library systems including Alma, Sierra, Kuali-OLE, OCLC WMS, Intota, and OpenSkies [3]. Li Juan et al. combined the Analytic Hierarchy Process with expert evaluation to construct a next-generation library system evaluation index system and assessed four mainstream systems: Alma, Kuali OLE, OCLC WMS, and Sierra [4]. (2) Empirical analyses of localized applications of overseas products and explorations of domestic next-generation

library system development. Tian Xiaodi explored the full-process electronic resource management functions of the Alma platform [5]. Chen Daqing introduced the development of the Kuali OLE system based on the RICE framework at Shenzhen University Library [6]. Xu Tiancai et al. analyzed the development status and trends of next-generation library management systems [7]. Yang Xinya et al. used Chongqing University Library as a case study to examine the transition to services platforms [8]. Since overseas services platforms have few applications in China and domestic platforms have not yet produced commercial products, most studies rely on vendor materials or overseas research, examining technical architecture, product features, main functions, and workflow management. User experience and perception are crucial for testing the success of library services platforms, yet these studies often lack user-driven insights.

2. User Experience and Perceptions of Alma, Sierra, and WMS in Overseas Academic Libraries

User experience and perception are key to evaluating library services platform success, with surveys being a common method for analyzing user perceptions. This section discusses user perceptions of the three major systems based on two surveys: (1) Marshall Breeding's global survey of library automation system user perceptions; and (2) a survey of electronic resource management functions in the three platforms by Singly, Director of Systems and Applications at Boston College's O'Neill Library, and Natches, Electronic Resources Management Librarian at Tufts University's Hirsh Health Sciences Library.

2.1 Survey of Academic Library Perceptions of the Three Platforms [12]

From 2012 to 2017, Marshall Breeding surveyed approximately 4,000 libraries worldwide on their integrated library systems and library services platforms, examining overall user satisfaction, general functionality, print resource management efficiency, electronic resource management efficiency, service support, and company loyalty (likelihood of purchasing the next ILS from the same vendor). The survey analyzed perceptions of various ILS/LSP platforms across different library types and sizes (scored 0-9). Due to space limitations, this analysis focuses on academic library experiences and perceptions of Alma, Sierra, and WMS.

2.1.1 Perceptions of Overall Functionality Academic libraries' perception scores for Alma's overall functionality showed a continuous upward trend, with significant growth after 2015. Sierra's scores declined continuously, particularly dropping sharply in 2014. WMS scores increased overall, rising substantially in 2014 then stabilizing [Figure 1: see original paper].

2.1.2 Perceptions of Print Resource Management Functionality In print resource management functionality, Sierra performed best, Alma weakest,

and WMS remained stable [Figure 2: see original paper].

2.1.3 Perceptions of Electronic Resource Management Functionality Alma demonstrated the highest efficiency in electronic resource management, with an increasing trend. Sierra showed the weakest functionality, with scores declining year by year. WMS remained stable [Figure 3: see original paper].

2.1.4 Perceptions of Customer Support Services In customer support services, WMS had a slight advantage, likely due to OCLC's extensive experience in global library support services. User experiences with Alma and Sierra's customer support showed declining trends, with Sierra hitting a low point in 2015 [Figure 4: see original paper].

2.1.5 Library Loyalty Survey As usage increased, academic libraries' loyalty to all three platforms declined. Loyalty to Sierra was lowest and continued to fall, while loyalty to Alma and WMS showed slow declines. Additionally, Marshall Breeding's 2017 survey on interest in purchasing new systems showed many libraries undecided among multiple products. Among listed preferences, 201 libraries leaned toward Alma, 74 toward Sierra, 86 toward WMS, and 59 toward FOLIO. Compared with 2016, Alma remained stable, FOLIO increased, while Sierra and WMS declined significantly [Figure 5: see original paper].

In summary, large and medium-sized academic libraries highly recognized Alma's overall and electronic resource management functionality. WMS excelled in customer service and user loyalty. Sierra maintained advantages in print resource management, but user loyalty to all three products was declining, indicating these platforms have not yet met user expectations.

Perception scores derive from user feedback, and due to significant differences in feedback volume (e.g., in 2017, the number of responding academic libraries was 225 for Alma, 208 for Sierra, and 111 for WMS), these data may not precisely reflect each system's merits but still reveal general trends. Alma shows strong momentum due to its electronic resource management strengths. WMS holds a certain market among small and medium-sized academic libraries. Sierra's advantages are limited to print resource management, with declines in other areas—likely related to fundamental architectural differences. Alma and WMS are multi-tenant architecture platforms built from the ground up using re-engineering approaches that redesign systems without recycling major modules from traditional systems. In contrast, Sierra adopted a re-packaging approach, modifying systems without changing original architecture or main functions while improving openness [3], resulting in inherent limitations in electronic resource management.

2.2 Survey of Electronic Resource Management Functions [13]

Between March and April 2016, Singly and Natches surveyed 445 U.S. academic libraries using Alma, Sierra, and WMS on electronic resource management func-

tions, including 185 Alma libraries, 110 Sierra libraries, and 150 WMS libraries. Highly specialized institutions (e.g., seminaries, technical colleges, or culinary schools) and libraries with annual electronic resource budgets under $10,000 were excluded. The survey yielded 299 valid responses: 129 from Alma libraries (43%), 120 from Sierra libraries (40%), and 48 from WMS libraries (16%).

Electronic resource workflows and tasks were designed according to the TERM (Techniques for Electronic Resource Management) framework—a standard electronic resource management workflow not tied to any specific institution or software system. Focusing on e-journals, the survey analyzed task completion within the system across various lifecycle stages .

TABLE:1 Survey of Electronic Resource Management Functions in Alma, Sierra, and WMS

Lifecycle Stage	Platform	System Completion	External Completion	Don't Know/N/A
Evaluate/Purchase Resources	Alma	34%	35%	31%
	Sierra	32%	39%	29%
	WMS	20%	48%	32%
Acquire & Deploy Resources	Alma	49%	28%	23%
	Sierra	27%	49%	24%
	WMS	25%	44%	31%
Evaluate/Renew Resources	Alma	9%	68%	23%
	Sierra	8%	70%	22%
	WMS	10%	64%	26%

In the evaluation/purchase stage (TERM 1), involving trial and assessment of resources, Alma had the highest system completion rate (34%), while WMS had the lowest (20%). WMS had 48% of tasks completed outside the system and 17% responding "don't know/not applicable," indicating weaker adaptability for this stage.

In the acquire and deploy stage (TERM 2 and 3), involving descriptive information such as access methods (perpetual, leased, subscription, one-time purchase), user numbers, licensing information, order dates, title lists, and administrative data, Alma again had the highest system completion rate (49%), Sierra the lowest (27%), and WMS had the highest external completion rate (44%).

In the evaluate/renew stage (TERM 4), involving cost-benefit analysis of electronic resources, all three platforms showed very low system completion rates, with Alma and Sierra both below 10%. This suggests that usage statistics func-

tions are either not user-friendly or not applicable—an area requiring attention from LSP providers.

While LSPs were designed to address electronic resource workflow management, this survey reveals that even libraries using these platforms complete many core electronic resource management tasks outside the system. This indicates both the inherent complexity of electronic resource management that cannot be fully solved by any system, and that LSP development remains in its early stages with a long road ahead.

3. Considerations for Library Services Platform Selection Based on User Experience

The analysis shows Alma dominates the LSP market, particularly in academic libraries. Sierra, as an upgrade of Millennium, offers more traditional solutions. However, driven by the need for full-media resource management, Sierra's conservative approach balancing traditional ILS functionality has become problematic. Since its 2012 launch, the percentage of Sierra libraries wanting to change systems has risen annually: 4.2%, 5.8%, 10.8%, 12.9%, 13.4%, reaching 19.2% in 2017, with its market advantage being eroded by Alma year by year. WMS, also built from the ground up as a multi-tenant architecture platform, operates based on the WorldCat database and has no market presence in China.

Thus, Alma currently stands as the only viable option in the library services platform market. Ex Libris claims Alma is the world's only unified library services platform. However, as the surveys show, Alma libraries still complete many core electronic resource management tasks outside the system. Is LSP merely a marketing concept? Do we need such a next-generation library system? In the ILS era, at least a hundred systems were available, yet today—with exceptionally active IT innovation and accelerating technology integration—we face the embarrassment of having no product choices. We must reconsider library services platforms and develop countermeasures.

3.1 Establishing a New Concept of Platform-Based Library Ecosystems

Although library services platforms are packaged with new technologies, their inadequate electronic resource management capabilities suggest they are merely old wine in new bottles. Using traditional ILS management thinking for electronic resources is like forcing a square peg into a round hole and has no future. Beyond conventional resource management, academic libraries must also manage institutional repositories, archives and special collections, research data, and digital publishing. No single vendor can develop applications meeting these complex and dynamic needs. The era of closed, monolithic systems and single-vendor service suites is ending. What we need is a platform-based interoperable library ecosystem—like Microsoft's Windows operating system. Microsoft developed widely used Windows applications like Word and Excel, but most

Windows platform applications are not Microsoft-developed. We don't expect Word to be bundled exclusively with Windows. Microsoft provides tools and services for other developers (sometimes competitors) to build on the Windows platform; more applications increase platform value. The concept of software and service exclusivity is obsolete; maintaining relationships with users across platforms is more meaningful. Microsoft brings its applications and services to larger user-base platforms like Android and iOS—a strategic vision lacking in the library systems market. While APIs and SDKs already enable backend cooperation, this is insufficient. Cloud-based, SOA-enabled LSPs can promote interoperability, but this is not yet a true platform. The solution for libraries' complex needs should be a platform-based ecosystem composed of loosely coupled applications—this is the real next-generation library services platform we anticipate.

3.2 Independent Innovation: Developing Open Services Platforms for Domestic Libraries

With ILS becoming obsolete and new library ecosystems yet to emerge, existing LSPs are transitional products. While anticipating next-generation platforms, selecting expensive transitional products seems unwise. China's library community needs to collaborate with system providers and IT service companies to develop library services platforms suitable for the domestic environment. CALIS, Shenzhen University Library, and Chongqing University Library have made positive explorations in developing next-generation library systems, but domestic system providers have not joined this effort on a large scale, likely due to insufficient user demand. Therefore, the most critical issue is domestic library requirements. Demand drives innovation; the Chinese library community must clarify its thinking and needs for full-media resource management and services. Software developers must break away from traditional closed-system thinking and commit to developing open, interoperable, and customizable service platforms. This is not easy—it requires joint efforts and substantial investment of human and material resources. More importantly, it requires an independent R&D and innovation movement for "next-generation library platforms" to advance the construction of open library services platforms suitable for Chinese users. The road ahead is promising but challenging.

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Abstract: [Purpose/significance] Traditional integrated library systems (ILS) are being swiftly replaced by library services platforms (LSP). Many academic libraries across the country are in the midst of assessing their ILSs and looking critically at these LSPs. However, the marketplace for LSPs is rapidly changing and it is hard for libraries to decide which LSP is the best fit for their institutions. The paper assesses the market and main functions of LSP products to date, and it is hoped that the study will be of use to academic libraries considering an ILS migration to an LSP. [Method/process] LSP is evaluated based on the survey data about the experience and perception of academic librarians overseas. [Result/conclusion] The number of LSP vendors are shrinking due to consolidation in the ILS/LSP market, and only Alma, Sierra and WMS are fully

implemented. Moreover, Opensource project FOLIO was announced to bring libraries another way. LSP, as a single, monolithic system, is not the answer. It is a loosely coupled platform-based library ecosystem model that will be the real “next generation” in library automation.

Keywords: next generation system; library services platform; Alma; Sierra; WMS; FOLIO

Note: Figure translations are in progress. See original paper for figures.