Library Services Platforms (LSP) and its impact on the Future of Automated Systems

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Abstract

The purpose of this research is to discuss the functional and technological characteristics of the new generation of office services platforms, and the features required in the next generation systems, with a follow-up analysis of a number of service platforms and comparison between them, and finally a discussion of the future of library systems in light of this technology. The research relied on the use of the descriptive analytical method to address the subject of the research and achieve its objectives.

The research concluded several results, the most important of which are: the necessity of involving libraries in the process of building and developing new platforms and identifying some of the required standards that must find their way in future versions of this product related to some activities such as, demand-based acquisition, ERM, APT, and defining standards that cover Application programming interfaces.

The research recommended several recommendations, the most important of which are: the need for libraries to quickly adopt library services platforms to meet the challenges imposed by the impact of digital transformation, identify the actual and evolving needs of beneficiaries, and make optimal use of these new platforms, which can provide a lot of assistance in improving the quality of those services, and avoiding saving information.

Keywords: *Integrated automated systems - service platforms - open source software - office resource management - electronic resources.*

Introduction

In the last two decades, libraries have witnessed tremendous changes, whether in terms of resources or the services they provide. Printed resources are no longer dominant in the library's collections (Dawes, 2012). Rather, digital collections have taken on a greater role in developing the library's holdings, in addition to the changing and evolving needs of beneficiaries, and an increase in The trend towards digital resources, and their desire to access all forms of library resources and services easily and quickly.

According to what Marshall Breeding said: (Breeding, 2007) there are three trends that have been distinguished over the past two decades due to (the increase in digital collections - expectations regarding changing interfaces - changing positions of the data community). We notice a significant increase in content on the Internet net and digital

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collections at a high speed that almost exceeds the effort required to maintain printed collections.

As for integrated library systems (ILS), they did not change much during that period, as they found themselves dealing with difficulty with the constantly changing environment and their multiple needs. This is due to the fact that these current systems were originally created to deal with traditional library collections and related services, and do not have the ability to manage the growing digital content (Hayek, 2014).

Current automated systems (ILS) need to manage resources in a comprehensive and unified manner, regardless of the form or location of the resources, to make them more efficient than they were in the past, especially since the nature of work has begun to change greatly in response to the steady growth in electronic resources, as the management of printed and electronic resources is integrated into one platform.

In fact, opportunity is available to libraries to improve their services and develop their current systems by relying on cloud-based library services platforms which provide all the necessary applications for library management, also by using a single search interface to connect beneficiaries to the resources they need, and achieve abundance in the budgets of the library, unions, and members at all levels, and ease of participation and access. To information, in addition to a set of reports based on local data that help in understanding the library's activities (Breeding, 2009).

Products like Ex Libris Alma and OCLC Management Services – World Share reflect traditional APIs and web services, allowing members to browse and install applications directly into OCLC services, and also allowing programmers to create or share applications that do not require OCLC services at all. Opportunities for truly competitive products that can handle complex scenarios, can be provided by such a trend toward infrastructure Joint ventures, and the increasing growth of coalitions (Hayek, 2014).

For example, Siris Dynix systems have installed all public libraries in Northern Ireland, and have continued to deploy their systems across the United States and in Western Australia. Ex Libris Alma chose a common system for the thirty-seven members to deal with the services of the Sieera Services platform. (Chad, 2011)

Research Problem:

In light of the inability of current automated systems (ILS) to manage printed and electronic resources to a large extent, and with the emergence of a new generation of library services platforms, libraries are looking for new ways to save time and money while improving their services, being able to exchange data, unified management of resources, and the ability to improve and develop workflow. And providing good services to beneficiaries by moving to office services platforms based on cloud computing technology. Therefore, libraries face several challenges in managing digital information resources due to the different nature and characteristics of these sources. Hence, the problem of the research is determined by the weakness of management and organization of this huge amount of information and the tools for accessing it, and the inaccuracy in meeting the beneficiaries' inquiries.

Research objectives:

The research aims to discuss the functional and technical characteristics of this new generation of office services platforms, with an analysis of the current landscape for office resource management, the disagreement between office services platforms and traditional integrated systems (ILS), and the features required in next generation systems, with a follow-up analysis of a number of service platforms and comparison between them. Finally, a discussion of the future of library systems in light of this technology.

Research Methodology:

The research relies on the use of the descriptive analytical method in addressing the subject of the research and achieving its objectives, as it is based on describing factual data and analyzing it to reach conclusions that help in finding solutions to the problem of the research.

Theoretical Framework of the Research:

There are three main approaches that organizations take to build new library service platforms:

1- Complete transition to the new system: (GRANT, 2012)

Organizations that follow this approach are WorldShara of OCLC, EXlibris ALMA, Sirials Salution Intota.

These organizations have a common point of view about the fundamental change that we have witnessed, whether in computer technology or the management of library operations, so the best way to benefit from all these changes is to start with a new design.

As a result, these systems are based on the AOI architecture, which allows multi-tenant operations, collects and analyzes data, and provides redundant and secure data centers.

2- Making improvements to the current system:

This approach is based on taking advantage of a large part of the previous generation of technology and workers in automated systems, and integrating it with new technology in different ways to provide new services and capabilities to beneficiaries. Suppliers realize the difficulty of returning their products from A to Z, and one of the systems that follows this approach is Vtls Innovations-Sierra. (GRANT, 2012)

3- Relying on open source software:

This approach has gained momentum in the office software market, but the task of building and managing an open source library management platform is a daunting and complex process. (OLE, 2016)

Examples of this approach are Koha, Evergreen. Libraries support this approach to develop an open source services platform, and Kuali, an organization supported by the Mellon Foundation, is launching a product called OLE, an open library environment. (Cardoso, 2012)

There are several projects based on open source systems, including NC Cardinal in North Carolina, SPARK Catalog in Pennsylvania, and three regional libraries in Massachusetts, and Evergreen has proven to be an effective platform for a large number of small libraries to pool their efforts and resources. (Cardoso, 2012)

Discussion and Analysis of a number of office services platforms and comparison between them:

1- Sierra By Innovation Interface (Innovative, 2016)

Sierra Library Management System provides the latest operating options, databases, and open software design, in order to provide an integrated system that facilitates daily tasks, and makes them more effective and integrated with other systems. It is characterized by an innovative interface that provides a variety of library products and services, primarily directed towards managing and discovering library resources.

Search and discovery service: The additional system called encore helps the beneficiary access all available research sources, whether electronic or printed.

The Sierra platform provides a single sign-on service, it also provides APIs to communicate with other systems, allowing the library to develop its applications and link them to the library system or connect the library system with other systems.

The Sierra platform is built on the internationally known relational database technology (RDBMS), and the database used in the platform is completely built on the UNICODE format, which allows storing and retrieving data in multiple languages, and also allows importing and exporting data in Unicode format.

The Sierra platform adopts Thin Client technology, as the platform does not require the installation of any additional software on workstations other than the platform application software. This feature also provides the ability for workstations to communicate with the application server via the Internet.

The Sierra platform was developed on Application Server technology and Multi-Tier Architecture. This technology allows data to be protected from any unauthorized use, as the application server acts as an intermediary between workstations and the database server.

Integration with LDAP, as the Sierra platform supports identity verification through the LDAP system, which provides the ability to activate unified access to the service. A service that provides beneficiaries with continuously updated content while allowing them to communicate with their favorite research by supporting the RSS Feeds feature.

2- ALMA by Exlibris (ExLibris, 2016)

Exlibris is one of the largest companies in the office technology industry, specializing in products for academic, research and national libraries. The company created Alma as a completely new product, designed to meet the needs of these libraries.

Operating as of 2013, Alma embodies the concept of unified resource management, upon which EXLibris is based as the basis of its functions, redirecting resources and services within and outside organizations.

The Alma platform was designed from the beginning to be deployed on a multi-tenant platform with an open source interface, enabling the system to easily interact with other systems, and this allows libraries to expand and develop their services. Alma implements open communication standards such as SRU, OpenUrl, EDI, Z39.50, NCIP, . SIP2 and Alma provide integration with the Primo discovery service. (GRANT, 2012)

All employee interfaces are provided through a web browser and support a full range of office operations such as selection, acquisition, and data management. It works to improve workflow through shared data and collaborative services, as well as cloud infrastructure, which was developed to enhance and improve the scope of library services.

All ExLibris data centers have implemented technical measures and controls to achieve the highest standards of security and privacy using the SAS-70 standard. It also provides accurate analyzes to assist in good planning and policy development.

3- WorldShare by OCLC (OCLC, 2016)

OCLC is one of the world's most influential and largest libraries providing library services and products. It was founded in 1967 to provide a shared cataloging service for libraries in the state of Ohio. The organization provides key services related to cataloging, resource sharing and many other tasks.

In April 2009, OCLC announced its plan to develop a new resource management system, augmenting worldCat's global catalog services, rather than relying on bibliographic databases that have been created in many libraries.

The product constitutes a complete suite of applications for library management based on

an open source cloud platform, offering a range of services such as circulation, acquisition, periodical circulation and license management of digital content in a single base. The Global Catalog discovery and search service includes worldCat, which provides flexibility and freedom of access to World Catalog data.

OCLC has built its platform using multitenant software, and in keeping with its engagement with libraries around the world, the WorldShare platform has been deployed across multiple data centers, developed using a service-oriented architecture, and has web-based interfaces for staff. Application Programming API (Interface) is a complete set of application programming interfaces, which are data structures or protocols provided by libraries or the operating system to support the construction of programs. These interfaces are intended to allow libraries or other organizations to create applications that go beyond those developed directly by the OCLC. (Breeding, 2009))

4- Intota from ProQuest (Proquest, 2016)

ProQuest is one of the largest companies providing library products and services in the world. ProQuest has taken a new approach to managing library resources and discovery services through its product, Intota.

It is a library services platform that aims to meet basic library needs, manages all forms of resources and evaluates them in one system, facilitates work in a smooth manner, and works to radically transform library services.

It is characterized by: It is an interoperable tool, and provides solutions for managing library resources in one package with the existing system. Provides quick access to resources, expands the scope of services, and communicates with the largest number of users. It enables libraries to convert old models of current systems that do not meet their needs today and rely on a completely new system.

It simplifies the library's acquisition, workflow, and licensing of electronic resources in an easy, integrated way with a library-specific discovery layer.

Provides automated support to automate workflows and evaluate demand-driven acquisitions. It performs quantitative and qualitative analysis, and is based on real evidence from budgets and usage that enables librarians to make sound development decisions.

It provides an easy call-up service and access to all library holdings in all their forms and locations. Easy and fast access using OpenUrl link analyzer. (Breeding, 2009)

5- Blue cloud from SirsiDynix (SirsiDynix, 2015)

This platform is designed to meet the needs of academic and research libraries, but it also includes school libraries for managing paper and electronic content, as well as dealing with education programs such as education management systems.

Built on a Service Oriented Architecture (SOA), and featuring seamless and comprehensive integration with information service providers such as EBSCO, this partnership will help provide enhanced functionality to the academic market.

It allows users to take advantage of valuable metadata from EBSCO, which offers unparalleled flexibility through the use of the application software interface.

Breaking down the barriers between global repositories, Web services are used to bridge the gap between repositories and private library content, allowing users to discover hundreds or thousands of databases, with advanced links to specifically search and collate, to help users find the best resources to meet their needs.

23,000 libraries from all over the world participate in this service, to use Blue cloud technology for easy use of resources, and to call up relevant resources that increase the power of knowledge for beneficiaries and their communities. It offers unparalleled

flexibility through the use of application programming interfaces and web-based services.

6- OLE from Kuali (Kuali, 2016)

OLE is an open source library environment for managing and communicating information with complete freedom for implementation by libraries. Released in 2014, the project is supported by Mellon Company under the auspices of the Kuali Foundation.

OLE Kuali was put into effect in two libraries around 2014, including Lehigh University and Chicago University. Other institutions in the process of implementing this system are Indiana University, Duke, North Carolina State University, Maryland Park, Penn State University, and Villanova. Finally, on December 11, 2015, the university joined Cornell.

It supports a wide range of resources and different forms of information sources, and includes an innovative environment of next-generation technology that enhances integration with university systems and institutions.

It aims to reconsider office business processes, develop new work that reflects the changing environment of office resources, and offer new methods for scientific research.

It works to build a full partnership with other organizations, network-based systems, focuses on technical support, software development, and provides support to OLE implementers.

Comparison between a number of office services platforms:

OLE	Sierra	World Share	ALMA	Intota	Open skies	Platform
Kuali	Interface	OCLC	Exlibris	Serial Solution	VTLS	Vendor
Advantages						
N	N	Y	Y	Y	Y	Multi-Tenancy
Saas	Saas	Cloud	Cloud	Cloud	Saas	Saas/Cloud
Y	Y	N	N	U	Y	Local Installations Possible
N	Y	Y	U	N	Data center	SAS70 or ISO 2700 certified
L	N	Y	Y	P	N	DAAS Shared data services
Types of target customers						
N	Y	Y	N	Y	Y	Public
Y	Y	Y	Y	Y	Y	Academic
N	Y	Y	Y	Y	Y	Special
N	Y	Y	Y	Y	Y	National
N	Y	Y	Y	Y	Y	Consortia
Functionality						
Y	Y	Y	Y	Y	Y	Selection /Acquisition
P	Y	Y	Y	Y	Y	Circulation
P	Y	Y	Y	Y	Y	Description /cataloging
O	O	O	O	O	U	Discovery
P	Y	Y	Y	Y	Y	ERM
P	Y	Y	Y	Y	Y	ILL
N	Y	U	P	U	L	Booking
N	N	Y	Y	Y	N	Analytics
Y	Y	Y	Y	Y	Y	Reporting
P	L	P	Y	Y	Y	One Interface

OLE	Sierra	World Share	ALMA	Intota	Open skies	Platform
Kuali	Interface	OCLC	Exlibris	Serial Solution	VTLS	Vendor
N	Y	Y	Y	Y	N	Knowledge base
N	N	L	L	u	L	Linked data support
Y	Y	Y	Y	Y	Y	Open APIS/ SOA
N	U	U	N	U	Y	Event Management
N	Y	Y	Y	U	Y	Mobile Support
N	U	U	Y	U	Y	Streaming Video Support
N	Y	Y	Y	U	Y	Multilingual Subject heading
N	N	L	L	P	Y	FRBR support
N	Y	Y	Y	P	Y	RDA Support
U	U	Y	Y	U	Y	EBook Support

Results of the Research:

When choosing and implementing any of these platforms, libraries must determine how to take advantage of these new capabilities and benefit from them to radically develop the library profession. To do this, libraries need to focus on the following:

 The necessity of involving libraries in the process of building and developing new platforms, and defining some of the required standards that should find their way in future versions of this product related to some activities such as, demand-based acquisition, ERM, APT, and defining standards that cover application programming interfaces.

 It is necessary to involve all those working in the library profession to ensure that the solutions presented through these platforms encourage and provide libraries with actual services (Lankes, 2011).

 Identifying basic services and ways to implement them to create differentiation among institutions, and to be the preferred source for providing information services to our final beneficiaries. In computing, we can look at our services outside our organizations and provide additional value to our members and end users. (Chad, 2012)

 Ensuring the effectiveness of library services platforms, in terms of providing platforms for creating knowledge, and not just Discovery Platforms. This means providing tools that make it easy for the user to create new knowledge.

David Kay looks at the future of upcoming systems and states that they require two things: the first is a kind of confidence towards this new type of technology, in terms of ensuring continuity of work, and the second is growing awareness and appreciation of the broader importance of these platforms (Chad, 2013).

Recommendations:

1. Calling on libraries to move quickly towards library services platforms and face the challenges posed by the impact of digital transformation, especially as it will help libraries save expenses, better manage collections, and provide new services.

2. Focus on identifying the actual and evolving needs of beneficiaries, and making optimal use of these new platforms, which can provide a lot of assistance in improving

the quality of those services.

3. The necessity of involving library sector workers in the platform development process so that it plays a major role in shaping future versions of this product, and to ensure that the solutions provided through it are done in a way that encourages and supports library services and meets the desires and needs of beneficiaries.

4. Avoid saving information in repositories and stores. We have many open options provided by these platforms that enable us to expand our services and use them outside the framework of the library, and provide a platform for beneficiaries to create and maintain content.

5. Training and qualifying library workers to ensure that they are able to deal and adapt adequately with this new technology.

6. Develop and enhance the existing structure that improves the conditions for interaction and dealing with institutions to include information systems within these new products.

7. Highlighting the practices, potential benefits, and obstacles associated with applying this new technology within libraries.

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