INTEGRATED LIBRARY SYSTEMS: A COMPARATIVE ANALYSIS OF OPENSOURCE SOFTWARE KOHA WITH PROPRIETARY SOFTWARE DESTINY LIBRARY MANAGER (DLM)

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INTEGRATED LIBRARY SYSTEMS: A COMPARATIVE ANALYSIS OF OPENSOURCE SOFTWARE KOHA WITH PROPRIETARY SOFTWARE DESTINY LIBRARY MANAGER (DLM)

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**ADVANCED CERTIFICATE COURSE ON MODERN
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TABLE OF CONTENTS

CERTIFICATION

This is to certify that the project work entitled: *"**INTEGRATED LIBRARY SYSTEMS: A COMPARATIVE ANALYSIS OF OPENSOURCE SOFTWARE KOHA WITH PROPRIETARY SOFTWARE DESTINY LIBRARY MANAGER (DLM)"*** was carried out by **Mr. Noel W. Cabfilan** (*College Librar*ian, *Benguet State University, Philippines)* under my guidance. The project work was carried out in partial fulfillment of the requirements for the *Advanced Certificate Course on Modern Library Practices, 8th Batch 2015*, National Institute of Technical Teachers Training and Research, Taramani, Chennai, 600 113, India.

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Dr. R. Ravichandran
 Course Coordinator

Date : _____

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Noel W. Cabfilan

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Abstract

This paper aims to compare open source Integrated Library System using Koha with proprietary Integrated Library System using Destiny Library Manager. The results revealed that Koha has functions comparable to Destiny Library Manager. Koha also displayed advanced functions in Serials management, Budget activities, Accession Registering, and Acquisitions procedures as compared to Destiny Library Manager.

Keywords:

Integrated Library Systems, KOHA, Open Source ILS, Proprietary ILS, Destiny Library Manager

OVERVIEW

The impact of technological advancements had brought openhanded opportunities to library and information professionals in the enhancement of their services. With the introduction of Information and Communications Technology (ICT) in the field of library and information science, the ever growing and dynamic information needs of patrons had made librarians introduce different modalities as to how they can serve these needs at the fastest rate possible. Being said, the automation of the different operations or services had gone inevitable for all libraries and information centers.

Thus, the Proprietary Integrated Library System was first introduced. The popping of vendors specializing in ILS had made it even more popular and succeeded in marketing the dire need for automating library services. But as libraries and other institutions are experiencing financial predicaments, the sourcing of options paved the way to Open Source Integrated Library Systems, a system which promotes avenues for continuous and participative development in the field of automation.

Prompted by the need to serve information needs of patrons in the technological epoch, librarians and information professionals are continuously finding their own ways to automate their libraries regardless of their financial capacities as opportunities are still open.

OBJECTIVES

a. To compare integrated library systems in terms functionalities and modules;
b. To provide brief and factual bases to librarians in choosing between an Open Source and Proprietary Library Systems;
c. To provide information to librarians using Proprietary Library Systems which things to consider before finally migrating to an Open Source Library System.

Limitation: As basis for comparison, this paper is limited to KOHA Open Source Library System and the Destiny Library Manager. The KOHA (3.14) demo system was used for Open Source ILS and DLM for the proprietary ILS.

INTRODUCTION

Integrated Library System is the generic term for systems used to automate various functions in the library. These functions are normally embodied in an Integrated Library Systems' modules. Modules like cataloging, circulation, patron maintenance, reports, administration, etc. The modules normally rely with each other to perform different commands, thus the term integrated. Purposely, ILS's main objective is to reduce the time spent by librarians or information professionals in providing bibliographic access and services for their users. To wit, preparing multiple entries for card catalogs manually is a time consuming practice in the library. As more time is spent in producing these cards, the information sources start to lose their value. One of the most significant aspects of library automation is the installation of the Online Public Access Catalog. Contrary to the manual card catalog searching, the OPAC has allowed multiple and simultaneous access to bibliographic resources available both onsite and offsite. Another important case in point is the automation of Circulation procedures. Lessening time in registering materials for checking-in/out of materials serves well the library staff and the patrons as well.

While it is true that budget is the first thing we think about when automating our libraries, options are already available. As Bilal (2014) said on library automation *"many options exist for embarking on a new library automation project or for migration from a legacy system to a new ILS. For example, a library may adopt an open-source ILS and contract out a firm that services the selected ILS, thus freeing most of the chores that library staff perform, including, but not limited to, installation, implementation, and technical support. Another option is for a group of libraries to join efforts to build their own ILS using open-source technologies. This option requires financial resources and the availability of staff with technical expertise. Small libraries with limited financial resources, however, may join consortium of libraries of similar size to share the ILS used by these libraries."*

The Need for Integrated Library Software

Every library needs an integrated library system. The software utilizes the patron and bibliographic records to perform a host of efficient function due to the processing speed and power of computers. Just as an automobile depends on an engine to engage the axle and turn the wheels in order to drive, the library needs an integrated library system to move forward in its daily operations. And, just as there are different types of car engines – gas, diesel, and electric – there are different types of ILSs, (Webber and Peters, 2010).

An Integrated Library System encompasses the fast-mode information-seeking behaviors of library users in today's generation. Library users receive information services via different avenues outside the library in a fast way. Consequently, they want to be served in the same manner inside the library. In this aspect, the integrated library system is indeed a prerequisite for today's library setups. But now, the real question I think is: *should a library go for a proprietary or open source library system? or Is it the suitable time to shift from a proprietary to open source library system?*

Proprietary Library Systems

Proprietary library systems are ILSs which are basically ready-made and ready-to-use systems. Conventionally, closed or proprietary systems are developed by private or commercial entities. Most often, these entities take charge in furthering the system including systems maintenance. Source codes are not shared by the companies or vendors. In so doing, libraries and

information centers remain dependent to them for updates or developments. However, Bilal (2014) specified that a number of companies have moved toward the open system concept to allow libraries to customize their ILSs, harvest data, and share metadata, among other things, through application programming interface or (API). This condition can now be an example of the so called "open" but "not free" system. Because primarily, libraries invest a certain amount of their budget to this system which in turn gives them the privilege to develop further the capability of the system or to custom-fit the functionality of the system to their institutional requirements.

1. Advantages

Major advantages of using Proprietary ILSs are readily available on various sources but essentially, one stood to be the most popular compared to an Open Source ILS, its *ease of usage*. These software, popularly characterized as *"Turnkey"* systems, are sold to libraries ready to use without major customization. Most often, these ILSs run on or have been developed to function on any Operating System without hassle or issues.

2. Drawbacks

Allocating a big slice of the library budget for a proprietary ILS is an investment in a recurring basis. Besides the initial payment made for the new ILS, libraries are required to pay for certain amount, most often annually, to maintain or have a secure technical support from the ILS vendors. The sense of ownership is also absent in the case of proprietary ILS. The feeling of freedom in custom-fitting some features of the system is vague. This absence is due to the fact that the development and enhancement of proprietary ILS lies solely within the vendors/companies. Furthermore, development or enhancement of proprietary ILS is done in a universal mode. Being said, updates or enhancements may not be necessary to all *"subscribers"* from different libraries offering varied services to diverse users having different institutional objectives.

Dependence is also one of the drawbacks of a proprietary ILS. Since the vendors hold the sole authority to modify the system, all that the librarians can do is to wait for the next update to be available. As a result, librarians sometimes or unnoticing tend to become *fixated* or *ever-loyal* to their system not realizing that ILSs should be dynamic as library users of today are having vigorous information seeking behaviors.

Open Source Library Systems

Open source library systems are those that allow the system's code to be developed further free from limitations. The development of the software among different library staff promotes collaboration which further advances into a community thereby creating a community of professionals having the same goal of expanding the functionality of the system. As the system is continuously developed in a collaborative way, more complex functions are emerging making other services in the library way easier as they have been before.

1. Advantages

Directly, open source ILSs' main advantage is that it is free from any license liabilities. This characteristic has spurred the ever-active online Koha communities. It is repeatedly said that open source systems belong to the public, the development and maintenance of the system becomes the responsibility of the public or the community of such particular open source system. By having this type of community, collaborative efforts transpire. Brainstorming, free-flowing exchange of ideas, sharing of experiences or practices on how issues and concerns regarding the system were resolved give every member of the community a wide range of concepts on furthering the capability of the system. Collaboration perhaps is one of the greatest advantage of an open source system.

2. Drawbacks

Perhaps the first thing to dispel is the myth that open source should be discussed as the cheap option. The wise library administrator will realize that while many of the best things in life are free, your ILS isn't going to be one of them. Your cost won't always be in legal currency. I've met staffs who were so traumatized by a bad migration that they are still visibly shaken years later by what is now a stable and reliable tool. The library has paid an ongoing price in terms of post-traumatic stress, and that cost can be too high. (Hamby, 2013).

Most of the open source ILSs are not ready to use. Technical expertise is needed from installation to custom-fitting. Time and again, these types of expertise regular librarians are not equipped with. However, if libraries are equipped with IT technical staffs, the burden of custom fitting is lessened; otherwise, the library has to shell-out a portion of their budget to hire one.

DISCUSSION

Comparative Analysis on KOHA and Destiny Library Manager

As per ByWater Solutions' citations, Koha is an open source integrated library system (ILS) maintained by and used by libraries all over the world.

In 1999 the Horowhenua Library Trust in New Zealand contracted with Katipo Communications to develop a new ILS before their existing system failed due to Y2K. During the proposal process, Katipo suggested to the library that the software they developed should be released under the GNU General Public License (GPL) to ensure the project lived on and would be able to be supported by other companies (Ransomnsom, Cormack, and Blake, 2009).

During the development process the new ILS was playfully named C4 or "Cheap and Cheerful Copy of C... {the name of the old system}," but the library wanted to come up with a name that meant something and so they decided on the name Koha. Koha is a Māori word (not an acronym for anything) for "gift," but not just any gift, it's a gift with expectations. Think of a Koha as a bottle of wine you bring to dinner. You are giving the wine as a gift to your host, but you expect dinner in return. With Koha the expectation is that you will contribute back to the project in some way (Engard, 2010).

On the other hand, FOLLETT Destiny Library Manager (DLM) is an easy-to-use, web-based library automation and management solution. Destiny Library Manager combines circulation, cataloging, searching, reporting and management in one centrally installed library software system. Students and faculty patrons access the system through any workstation with a supported web browser, through the library district's network and the Internet. DLM is owned by FOLLETT Corporation founded 1873 in Illinois, United States (capterra.com).

For the following comparisons, KOHA descriptions are lifted from the research paper of CS Venkatarama Reddy on Comparative study of Free/Open Source Integrated Library Management Systems (FOSILMS) with reference to Koha, NewGenLib and E-Granthalaya published in e-Library Science Research Journal, October 2013.

1. Systems Requirements

Before any software installation, it is imperative to identify the different technical specifications needed for the software to run impeccably. Knowing these specifications prior to securing certain system could also help libraries prepare in advance so as not to waste time in figuring it out what went erroneous.

Table 1. Systems requirements

	Specifications	Koha	DLM
1	Version	3.0 (v.3.20)	12.0.3.0 (v.13)
2	Operating Systems	Linux/Windows	Linux/Windows
3	Programming Language	Perl/PHP	JAVA
4	Application Server	Active State Perl Modules	JBoss [Trinity]
5	Web Server	Apache	Apache
6	Database Server	MySQL, Oracle	Microsoft SQL Server
7	Client	Browser-based	Browser-based
8	Interface	GUI	GUI

As of this writing, the latest version of Koha is 3.20 and updates become continuously available due its active community. Destiny Library Manager's new version is 13.0. The new version (FOLLETT DLM 13.0) incorporates many of its user suggestions with the hope that the enhanced features meet their users' needs. Some of the enhanced features are found in Library Manager (Overdrive Integration and Relevance Searching Enhancement), Resource Manager (Catalog Unbarcoded Resources, Inventory Unbarcoded Resources, Circulate Unbarcoded Resources, Catalog Kits and Components, Transfer Enhancements, District Warehouse and Orders, Digital Materials and eTextbooks, Searching Enhancement and Classes and Sections) and Textbook Manager, (follettlearning.com).

While most of its community claimed that Koha can already be installed in Windows OS, this is still an issue as of late. As most of proprietary ILSs run either on Linux and Windows OS and so does the DLM. Koha is written in PERL/PHP while DLM is written in JAVA. Both system use Apache Web Server. Koha employs Active State Perl Modules for its Application Servers; on the other hand DLM utilizes JBoss [Trinity]. Equally, both systems use Graphical User Interface and are browser-based.

2. The Modules

An Integrated Library System's functionality is determined by its modules. Each module, though operating distinctively, is inter-connected to other modules, hence the term integrated. As an illustration, the OPAC, Circulation, Reports modules, etc. are dependent on the Cataloging Module; the Circulation is also dependent on Patron Maintenance/Administration and Cataloging for if there are no bibliographic records available from Cataloging there are apparently nothing to circulate. In the same manner as, collections cannot be circulated if Patron records are not available.

Amongst the very fundamental modules an ILS should contain are Cataloging, OPAC/User Interface, Patron, Circulation, Reports.

Table 2 displays nine ILS modules available in Koha. Apparently, four of these modules are non-existent in DLM: Acquisitions, Serials, Budget and Accession Register. In the old version of the FOLLETT DLM called CirCat (Circulation and Catalog) the modules Serials and Acquisitions used to be part of the system. However, if my assumption is precise, these two modules were not as useful or as widely used by FOLLETT customers. In consequence, the FOLLETT Company might have thought of just removing these modules in the new FOLLETT DLM. As per Budget and Accession Register, these were not present even in the old FOLLETT system.

Table 2. Modules

	Modules	Koha	DLM
1	Circulation	✔	✔
2	Acquisitions	✔	☒
3	Serials	✔	☒
4	Cataloging (Z39.50)	✔	✔
5	Patrons (Record and Maintenance)	✔	✔
6	Reports	✔	✔
7	Budget	✔	☒
8	Accession Register	✔	☒
9	Digital Library	✔	✔

Despite the absence of the earlier said four modules, DLM continues to perform efficiently. As a matter of fact, some libraries may find issues in the Acquisitions and Budget modules of Koha. As different libraries usually function within a larger institution, financial and auditing procedures may not adhere perfectly with the system especially those that work in government institutions. But in the case of corporate libraries, these modules can be deemed perfect. An automated Accession Register is

also a desirable module in Koha. Having an automated accession record allows library personnel to work with records both bibliographic and accession in one setting, especially during inventory and bibliographic verification activities.

3. Cataloging Module

The catalog provides an avenue for libraries to showcase what they have to their users. The catalog serves as the gateway to the universe of information or knowledge the library may have accumulated for quite a period of time. The Cataloging module therefore is considered one of the fundamental features of an ILS.

Table 3 shows that Koha and DLM show no major difference in terms of the nine Cataloging functions itemized. But experience would dictate that in Koha, customizing cataloging templates (MARC templates) would take an enormous amount of patience and familiarity with MARC. As Koha is Free and Open Source, patience and diligence are binding key attitudes to arrive at desired results.

Table 3. Cataloging Module

	Cataloging Functions	Koha	DLM
1	Cataloging Administration	✔	✔
2	Retro-Conversion	✔	✔
3	Full Cataloging	✔	✔
4	Import/Export Records	✔	✔
5	Modify Catalog Records	✔	✔
6	Search Catalog Functionality	✔	✔
7	Abstracts	✔	✔
8	Change Copy Status	✔	✔
9	Barcode Generation	✔	✔

4. Circulation

The Circulation module plays an important role in managing a library's item issuances more effective and efficient. This module also allows users or patrons get access to the library's collections by borrowing materials and returning these materials on defined due dates. It further streamlines the circulation activities of the olden library procedures, instead of maintaining several records and letting users register repetitively, user's library transactions are recorded online. Furthermore, circulation module allows easy monitoring of circulation over

dues/renewals, thus making sure all resources are equally available to all users.

Table 4. Circulation Module with Patron Administration

	Circulation Functions	Koha	DLM
1	Circulation Administration (with patron administration)	✔	✔
2	Configuration of parameters	✔	✔
3	Issue and Return of items	✔	✔
4	Reservation and Renewal of items	✔	✔
5	e-Mail alerts to members	✔	✔
6	Print gate pass / receipt	✔	✔
7	Fine management	✔	✔
8	Overdue notices/alerts	✔	✔
9	Printing of Identity Cards / Patron Labels or barcodes	✔	✔

The nine Circulation functions depicted in Table 4 are all present in both Koha and DLM. This indicates further how complicated and advanced Koha is, or better yet, Koha is at par with the different functions of any other ILS offered in the market today. Pruett and Choi (2013) said that *"As a testament to Koha's robustness, it even has an offline circulation utility, in case of a network or power outage."* Circulation module is very crucial at the library user's end for it is here where they gain accountability from the library in terms of the materials they borrow and any financial obligations they might incur.

Again, a notable difference in this case is the configuration work in Koha which needs to be done with utmost attention and diligence.

5. Reports

Reports regarding library services are vital part of any library services' evaluation. Statistics or numbers reflects the library's degree of utilization by its users. These reasons further compel the librarians to be always ready when data is needed to support requests for program implementation and enhancements especially in terms of financial aspects. Henceforth, the reports module's functionality of an ILS comes handy. The ability to produce statistical reports via the ILS at least possible time is proof that the library considers time as essential in delivering services.

Table 5 enumerates some six Reports functions in ILS namely: View Index, Catalog Queries, Patron Statistics, Circulation Statistics, Most Issued Books and Frequent Borrowers. As revealed, all six functions are present in both ILSs. However, it is worth saying that the Reports functions of DLM are more established than Koha. This is credited to the fact that FOLLETT CirCat now DLM, has been serving different clients for quite number of years allowing them to receive a lot of requests for further enhancements from various DLM users. On the other hand, Koha's Report module seems unexplored yet. The Reports capability in *"Cross-Tabbing"* different data from different modules and generating it in one report is critical. Particularly in cases of Academic Libraries undergoing various accreditations where statistical data may sometimes be needed without prior notice.

Table 5. Reports Module

	Reports Functions/Generation	**Koha**	**DLM**
1	View Index	✔	✔
2	Catalog Queries	✔	✔
3	Patron Statistics	✔	✔
4	Circulation Statistics	✔	✔
5	Most Issued Books	✔	✔
6	Frequent Borrower	✔	✔

Reports module in both open source and proprietary ILSs continue to perform more complicated operations to provide a more detailed and accurate data. Evidently, Koha shows a great potential in catching-up with proprietary ILSs. As a matter of fact, some configurations on the existing Koha Report module are already showing great progress. The more users participate in the furthering of Koha, the more opportunities or capabilities are unlocked in Koha.

6. Online Public Access Catalog Search Functions

The Online Public Access Catalog or Web OPAC is a show window to a library's holdings. Most often, the OPAC is an indication that a certain library is automated or has started automating their services. OPAC has become obligatory for all libraries as a form of bibliographic information retrieval system. It has caused the massive stagnation of card productions for library catalogs. It has also freed the library personnel from the burden

of manual card production thereby permitting them to be given more time of reference interaction with the users, a trend in library services now-a-days. WebOPAC features also gave an avenue for users to search bibliographic records offsite.

Table 6. OPAC/WebOPAC Search Functions

	OPAC/WebOPAC Search Functions	Koha	DLM
1	Web Interface	✓	✓
2	Basic Search	✓	✓
3	Advance Search	✓	✓
4	Recent Arrivals	✓	✓
5	Status Inquiry	✓	✓
6	Member login	✓	✓
7	Feedback	✓	✓
8	Library Statistics	✓	✓
9	Reservation through OPAC	✓	✓
10	User Help	✓	✓

OPAC's functionality or ease of usage and appeal to the users is significant in library services. It is with these characteristics that users actually base their assessment. Table 6 presents ten OPAC / WebOPAC search functions. Ostensibly, Koha and DLM indicate similar OPAC functionality from Interface to User Help functions. This is another attestation that Koha's development is moving at a relatively fast pace.

Data Migration

Data migration, in the ILSs term, simply refers to the process of transferring data from one ILS to another ILS that fits better the needed features required by the library. But as any another automation procedures, migration is a tiresome responsibility.

Various whys and wherefores exist for data migration. Bilal (2014) listed some reasons for data migration:

- The existing ILS is traditional in its interface design and features, and the library is moving toward enhancing the user's experience and information discovery while providing staff with robust modules that are customizable and responsive to their needs and requirements.

- The existing ILS is old, inefficient, and the vendor no longer supports the software
- The recurring cost of the existing ILS is high, especially when compared to the features and functionalities it supports; the return on investment (ROI) can no longer be justified.
- ILS's vendor performance is unsatisfactory.
- The library is joining a regional or state-wide consortium and will migrate to the system decided upon by the library consortium group.

Before conducting data migration, the library management has different responsibilities to do. On top of these things is evaluating an Integrated Library Software vis-à-vis the functionalities required to run particular activities or services of the libraries. *Evaluating an ILS will be discussed briefly below.* Other issues to consider in data migration are compatibility issues. As different ILSs were developed by different personalities or companies with different objectives, ILSs tend to run on different platforms and sometimes may necessitate varied hardware requirements. The presence of technical support before, during and after the data migration should also be considered. Along with the technical support is the training or orientation for library personnel on the new system is also vital

But today's concern really is the dilemma brought by the increasing popularity of OSS ILSs. Is today the right time to migrate from proprietary to OSS ILSs, or could it be the other way around? The answers to these questions are expected to be unpredictable. The variation of library user needs in relation to the institution's objectives is not universal. The needs of a particular library may not be necessary to another library. Thus, data migration necessitates detailed and careful planning with complete assessment before its implementation.

Selecting and Evaluating Integrated Library System

Selecting and evaluating an ILS entails careful planning. UNESCO (2001) posts these propositions when selecting or evaluating and ILS:

What are some of the steps in selecting an integrated library system?	Some questions to ask when evaluating library systems
- Analyze and identify your needs - Develop criteria for evaluation based on your needs assessment	- Can the system run on any platform? - What modules are available?

- Read relevant reviews of library automation systems and related technologies and standards - Prepare a short list of library software packages, their features, functional modules available, and standards supported - Ask libraries for an honest evaluation of their library management system - If possible, visit local libraries or institutions using a library management system - Ask vendors for a demo version to try out, or if available download from their site on the Net - Determine and compare initial and total cost of each library system	- Does it support the MARC standard? - Does it have the Z39.50 protocol? - Can it be used in a client-server LAN architecture? - Is the interface intuitive? - Will training be provided? - What is the cost? - Is an unlimited license part of the cost of the package? - What are the contract stipulations relating to receipt of any system upgrades? - Can it produce the reports that you need? - Are manuals and other documentation available and in a suitable language?
http://www2.unescobkk.org/elib/publications/ictlip/module2/Lesson3.ppt	

Other criteria proliferate as per selection and evaluation issues regarding ILS. Criteria may differ from one library to another based on their specific needs. As the stated criteria by UNESCO are general statement, it is important to consider developed (developing) open source ILSs. Other OSS ILSs that have proven stability and continues to develop besides Koha are *Evergreen and e-Granthalaya.* Other authors like Pruett and Choi (2013) compared particular OSS and proprietary ILSs based on four areas: *functions, adoption and technical support, usability, and economics.* These are helpful guides readily available for those who plan to automate their services or for those who plan to migrate from one system to another.

CONCLUSION

Based on the presentations, Koha has proven to be at par with the functionalities of DLM. The major difference observed, as this also exist in any other OSS applications, is the amount of dedicated time to be invested in Koha for customization. Technical expertise is also necessary to run Koha steadily. Koha also had displayed advanced features in it's Acquisitions, Serials, Accession register and Budget modules as compared to DLM.

The concluding question now should read *What features does DLM offer that can not be found or can not be fitted in Koha?* Answers to this question may possibly be available at any Koha online community.

RECOMMENDATIONS

Koha has displayed complexities in terms of its functionalities paralleled with DLM. Consequently, the following recommendations are drawn:
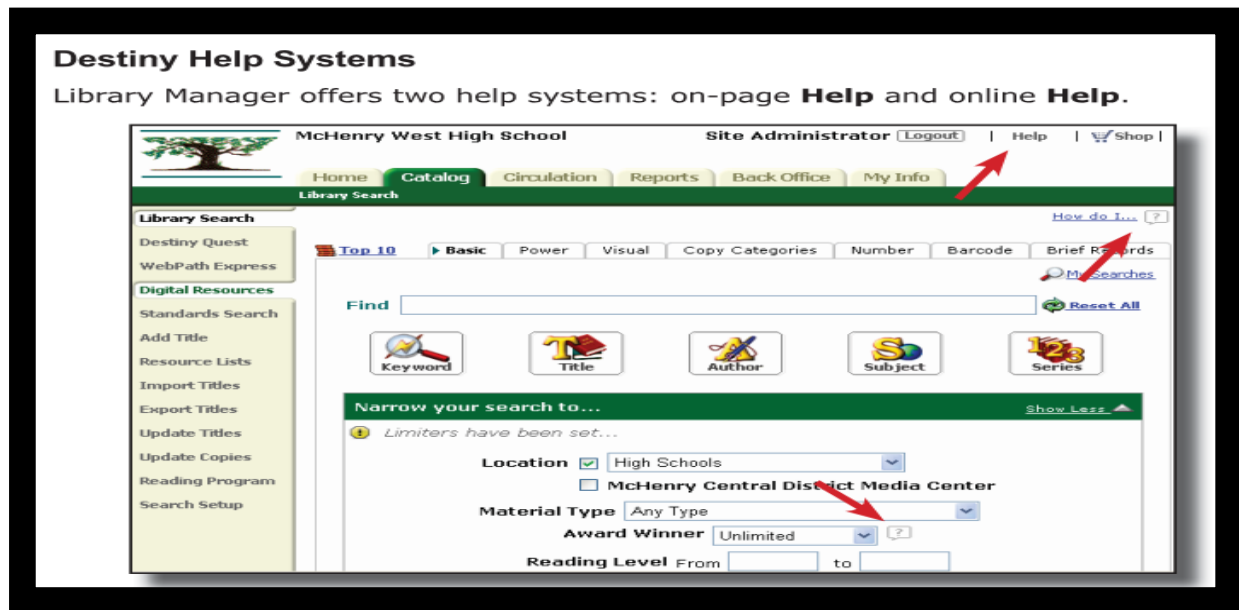
1. Further comparative analysis should be done on other Open Source and proprietary ILSs.
2. Koha should be examined, studied, tested and considered by libraries using proprietary systems.
3. Librarians should participate in various open source communities available online to have a better understanding or appreciation of the capabilities of Open Source ILSs.
4. Librarians should not remain fixated with proprietary ILSs, a system they have been accustomed to for quite a length of time. Instead, they should exert effort to open their libraries for possibilities of adopting open source systems.
5. Research and planning in the field of library automation should be a continuous endeavor for all libraries.

DESTINY LIBRARY MANAGER NAVIGATION and HELP SYSTEMS
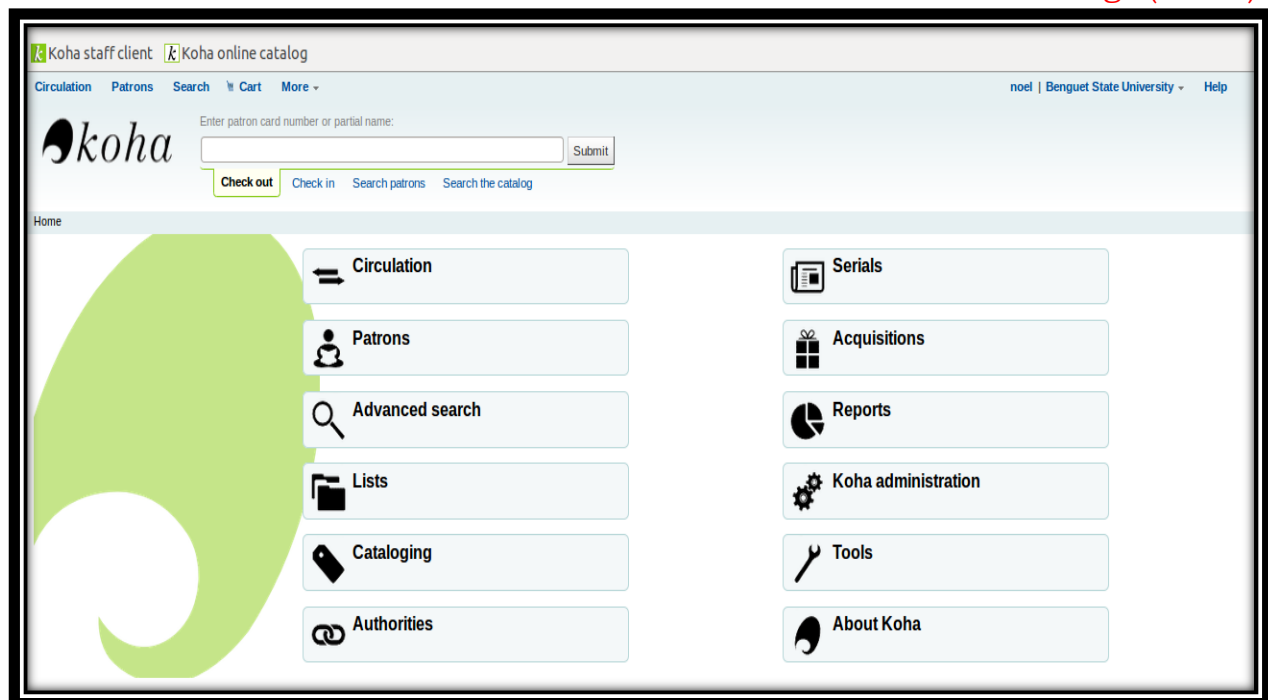
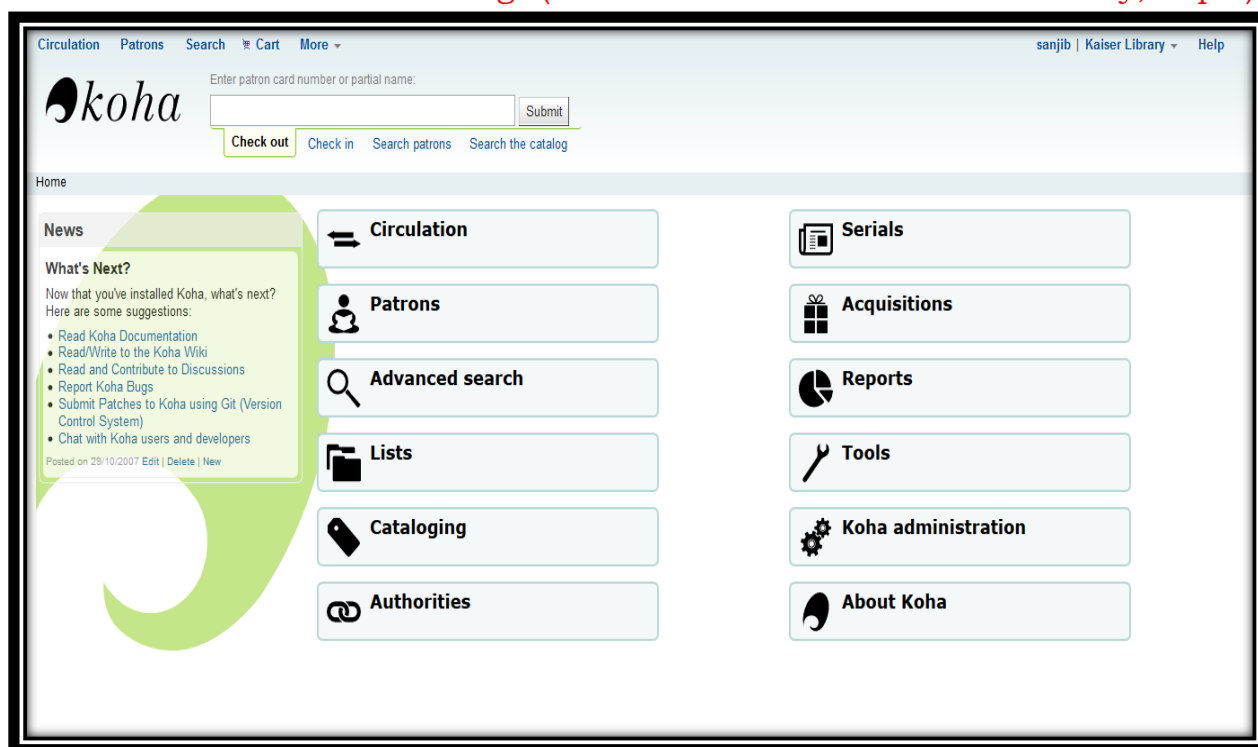DLM Navigation thru Tabs
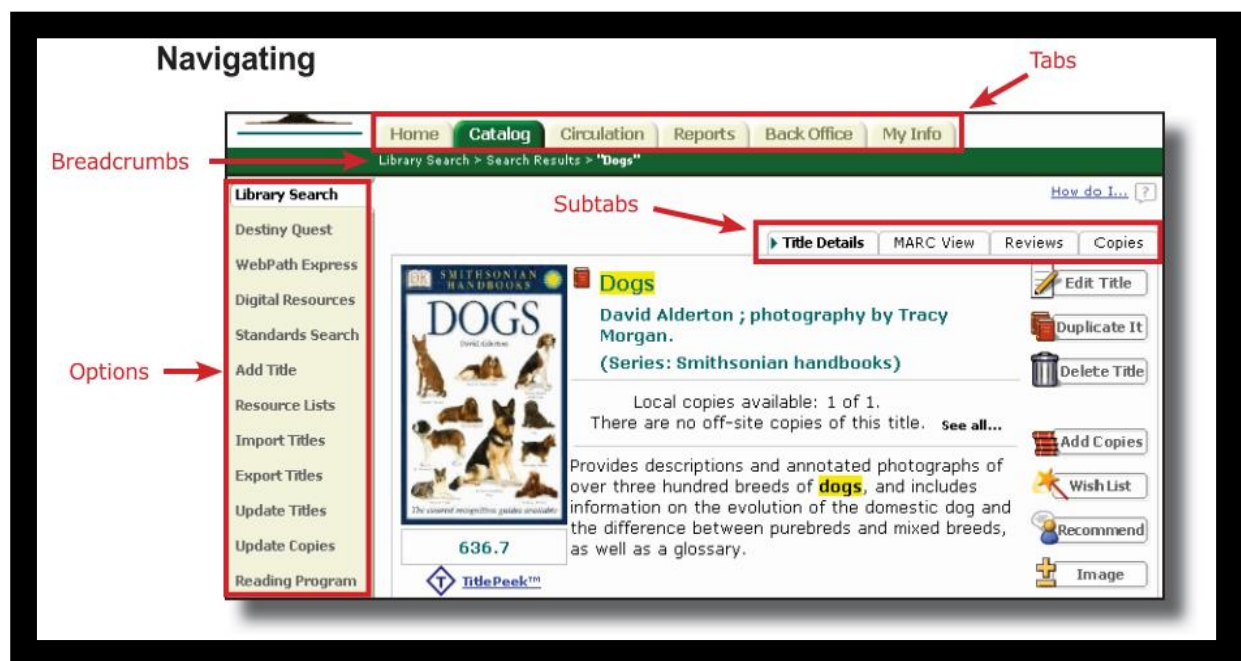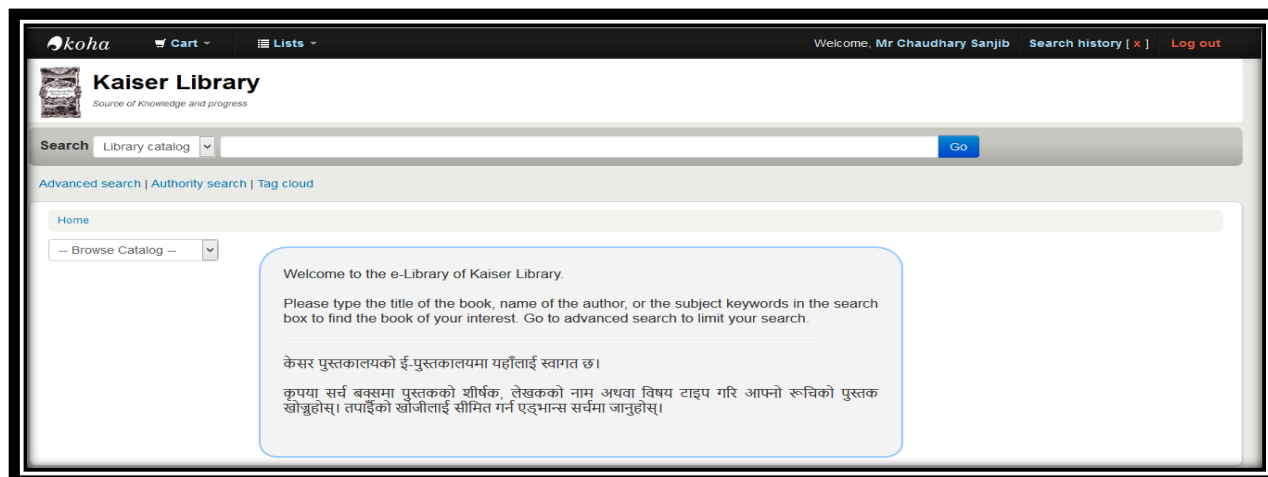
Help Systems are Online

KOHA HOME PAGE

Home Page (Demo)

Home Page (Active Admin Account. Kaiser Library, Nepal)

Home Page (Active OPAC User Interface. Kaiser Library, Nepal)

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