Research Paper

Developing Features and Utility of System in Vufind Integration of Koha and Dspace: Single-Window Retrieval System

Sheuli Hazra *

Librarian, M.U.C. Women's College, Purba Bardhaman, West Bengal, India

Corresponding Author: *Sheuli Hazra

ABSTRACT

The paper shows that analytical comparison of the web-scale open and free source discovery software in libraries and other museums, along with the different discovery services, is available both in commercial and open-source domains. The paper discusses several open-source discovery software tools and identifies discovery layers in the open-source domain, based on which can be compared to compare the usability and accessibility of different discovery layers of all usable software. It will identify tools potential of applications of these interactive, combined, and participative tools in enhancing existing library services and the viability of introducing next-generation library services. Therefore, today all world looks over the newly made association, which is the library discovery systems software. Discovery layers in the open-source domain make an analytical evaluation in the environment of the resource of digital library software distributed across the globe.

KEYWORDS: VuFind, Koha, DSpace, Search techniques

1. INTRODUCTION

The analytical comparison of the web-scale source discovery software in libraries all along with the different detection services available both in commercial and open-source areas. The paper discusses numerous open-source discovery software tools and identifies discovery systemic layers in the open-source domain, based on which can be compare the usability and convenience of different discovery layers software systems can be compared. This paper critically analyzes the scholarly articles from printed, e-journals, papers from conference proceedings, web resources, technical reports, web-pages, and books from the perspective of finding out the knowledge gap in the core area of features and utility of the system, the concerned topic, by analyzing a wide array of related primary documents.

2. OBJECTIVES OF THE STUDY

- To end user border to provide a single window search system for query (basic and advanced), presentation of searching results for retrieved resources.
- To use the library discovery system for end-user access to online resources, visibility on the web system, and library link to a connected world.
- To look for and retrieval system for all local resources included in local ILS and local repositories.
- To synchronize interaction with the local ILS to indicate availability of local resources.

- To gather the possible digital knowledge resources to build a comprehensive search retrieval system border.
- To integrate 'VuFind' (Open-Source library discovery tools) with 'Koha' (Open-Source library management software) and 'DSpace' (Open-Source library institutional repository) digital library software to circulate across the sphere.
- To retrieve metadata with a full-text digital resource search through the OPAC at a time.
- To develop a trouble-free-to-use widespread search interface for open-access systems, etc

Scope of the Study
- To develop a single-window search interface system for all users.
- To build a unified platform to search all the resources (open source or commercial databases) and estimate the impact that library discovery technologies are usage on the academic resources system.
- To promote electronic content by libraries, e-books, e-journals, and different types of Databases, which are higher-level studies, are implemented to improve library satisfaction with Resource Discovery Services, which is given very positive feedback by users.
- Multilingual are is available in this discovery system.

Significance of the Study
- To gather all potential digital resources to build a comprehensive search retrieval system interface.
- It would help the integration of VuFind with Koha and DSapce (digital library software) to access the digital archives.
- To develop an easy-to-use, comprehensive search interface for open access resources;
- It would help the Librarians and Information scientists in developing the digital archives for study and research purposes.

3. RESEARCH METHODOLOGY
- Is it possible to develop a ground integration platform made for VuFind with Koha and DSpace digital library software to distribute world resources?
- How to search a retrieval system that uses the purpose of search techniques?
- How to search the Open-Access Resources in the discovery layer, like E-books, OJS, OHS, DOAJ, and OpenDOAR, where all the journals & repositories are taking place after stepping into the Open Harvester System, that is the software which can able to harvest the repositories?
- How to maintain the E-books' expanding growth of a library OPAC full-text and
metadata search?

- How to possibly retrieve document multi-linguality?
- How to design and apply multilingual user interfaces at different levels and different points of utilization?
- Is full-text search possible for an offline system?
- Is it complaining about Open Access databases?

This paper is concerned with the service model of the prototype. These are described with different snapshots of the key services provided by the model. This is the main user interface of the proposed model (Fig. 1). It has been modified to provide additional value-added services to the users. This discovery interface allows libraries to offer more and more value-added services to users using modern tools. This model also supports full-text searching of data through Apache Tika.

First, go to the terminal $ cd /usr/local/vufind next ./solr.sh restart. The next screenshot is below,

Fig 1: VuFind starts in the terminal

VuFind:
VuFind is a discovery layer and search engine. It was developed by Villanova University near Philadelphia by Andrew Nagy (software developer) and Chris Barr (interface designer). It is extremely customizable and capable of presenting multiple data formats in a single user-friendly interface. VuFind is completely standard, so you can implement just the basic system or all of the components. The goal of VuFind is to enable your users to search and browse through all of your library's resources by replacing the traditional OPAC to include:
- Catalog Records
- Digital Library Items
- Institutional Repository
- Institutional Bibliography
- Other Library Collections and Resources

History
VuFind (open-source discovery tool) software was initially developed in March 2004. Andrew Nagy started at Villanova University in March of 2004. After that, the development started as a prototype section development in 2006. It's work on

Villanova's digital library leads to the idea for a general discovery tool. They showed a prototype in February 2007. Chairs Barr was described as a user interface designer in May 2007. Lucia (2007) invented the first beta element, which is the actual coding time for the first release was about six months, spending the whole time in July 2007. After that, VuFind (open-source discovery tool) was first introduced to the staff of Villanova University in September to December 2007. Therefore, VuFind software underwent intensive testing at Villanova University, ramping up to release 0.8 in January to March 2008.

All the features and utilities of the System in VuFind with integration of Koha and Dspace are described below:

Simple search
The user can search resources by putting any term in the search box (Fig. 2). Apart from this, the user can search by author, title, subject, ISBN/ISSN, etc.
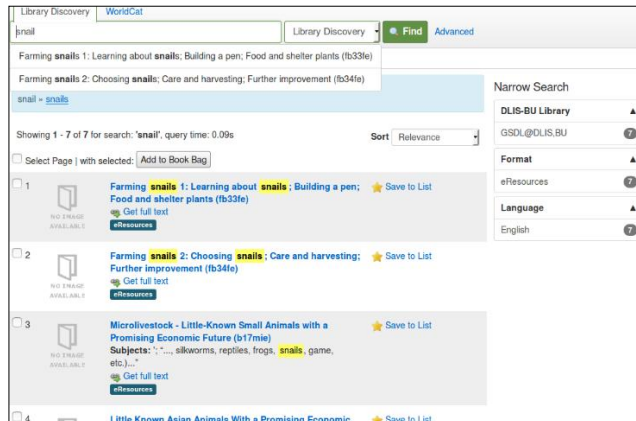

Fig. 2: shows the records by the term 'library' used here in the title
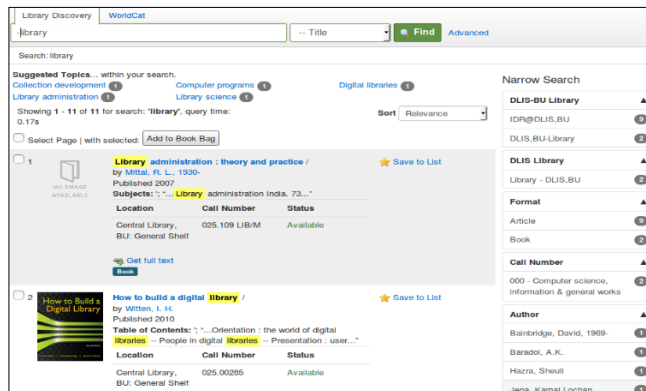

Fig. 3: Like other discovery systems, this system supports advanced search through different search syntax
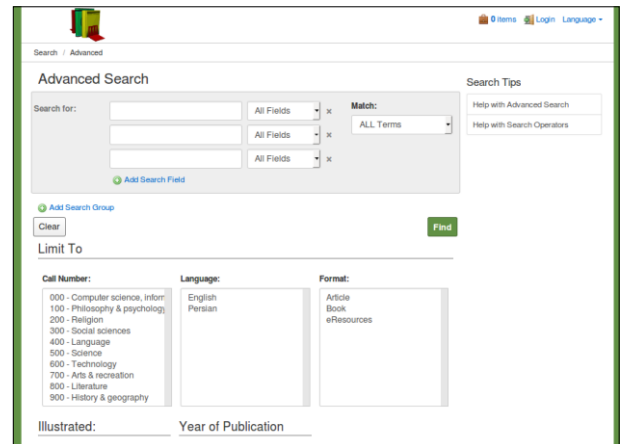
Advanced search

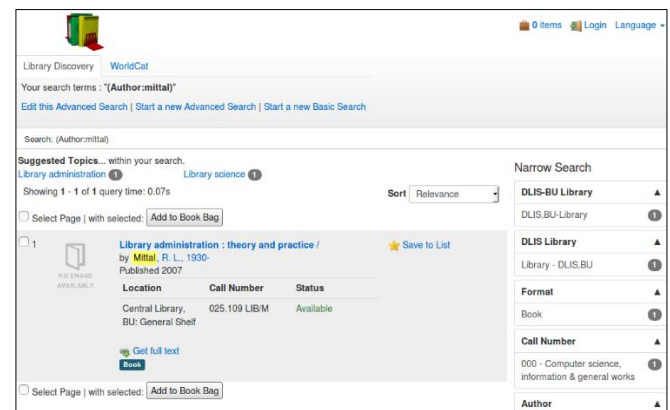**Fig. 4:** Advanced search Interface of VuFind

Fig. 5: shows the records against the search term '*mittal*' in the author field
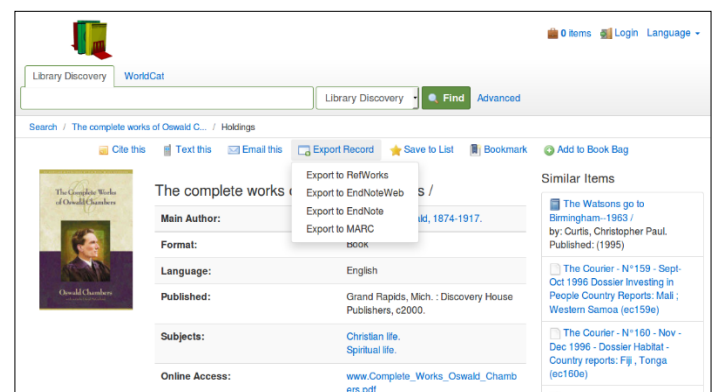
Export-import

Fig. 6 shows the export-import field.
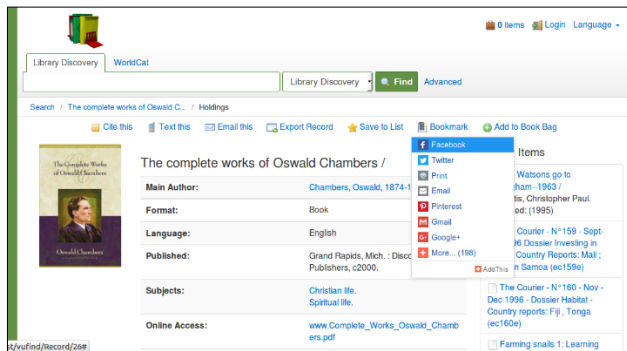
Social-networking

Fig. 7: shows the Social-networking file
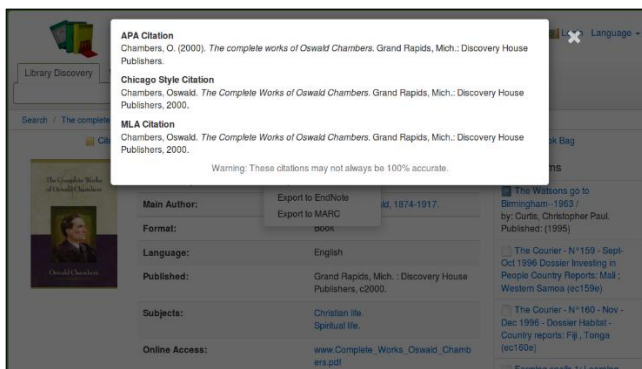
Citation-stamping

Fig. 8 shows the citation-stamping file

Koha with VuFind

Koha as an ILS has already been integrated with VuFind. This particular section demonstrates with snapshots how resources in Koha can be accessed through VuFind. The following snapshot shows the result against the search term 'repository'.
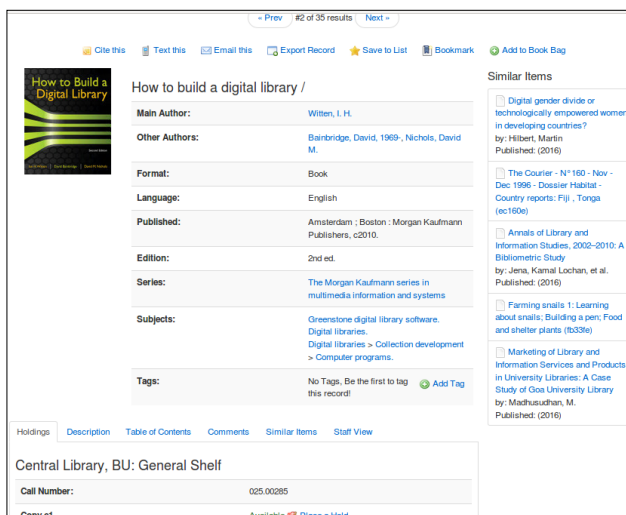

Fig. 9: The following snapshot displays the record in detail

DSpace with VuFind

In the same way, Koha resources in DSpace can also be accessed through VuFind. VuFind supports the integration of the repository system, and thus, records can be accessed through VuFind. Fig. 10* displays the total number of records against the search query.
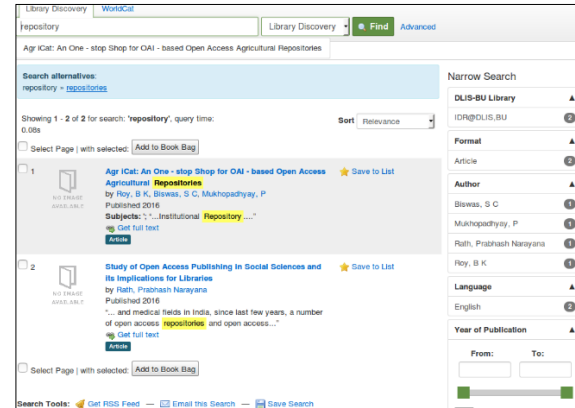

Fig. 10: For the sample test, one record is shown in detail

Browsing and Searching using Classification Number

The model of the web discovery system supports simple and advanced searching using different search syntax. By default, VuFind supports browsing and searching resources through the LC (Library of Congress) scheme. But this model supports browsing and searching records using the DDC (Dewey Decimal Classification) call number. Some sort of modifications has been made at the system level to display DDC at the time of searching. Now, users can browse and search resources by DDC call number apart from the default LC.
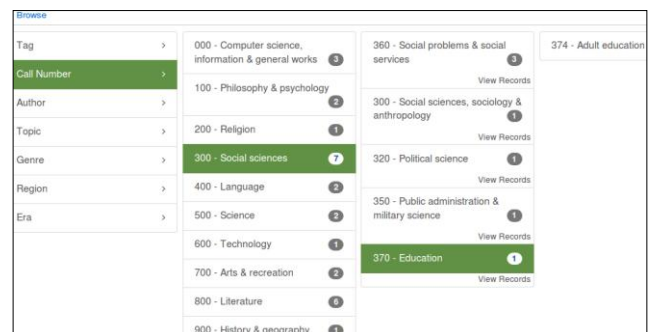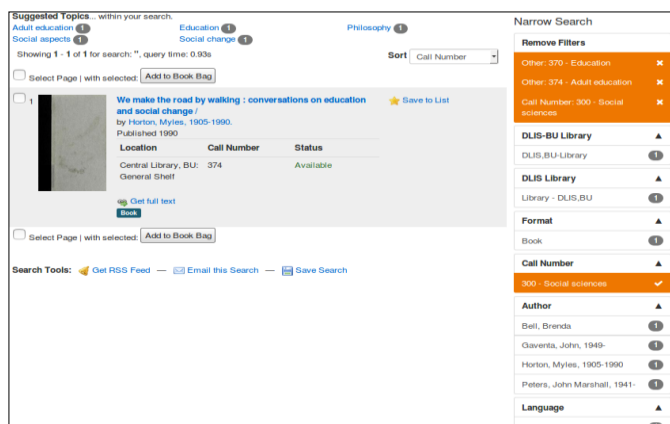

Fig. 11: DDC in VuFind

Fig.12: One record under '*Adult education*' whose class number is '*374*' as per DDC

Linking to External Sources

This model supports browsing and searching resources from External sources through the VuFind interface. The default search interface of VuFind has been customized, and some sorts of modifications have been made in catalogue records to provide global access to some selected sources such as WorldCat, Google, Google Scholar, IndCat, etc (Fig. 13).
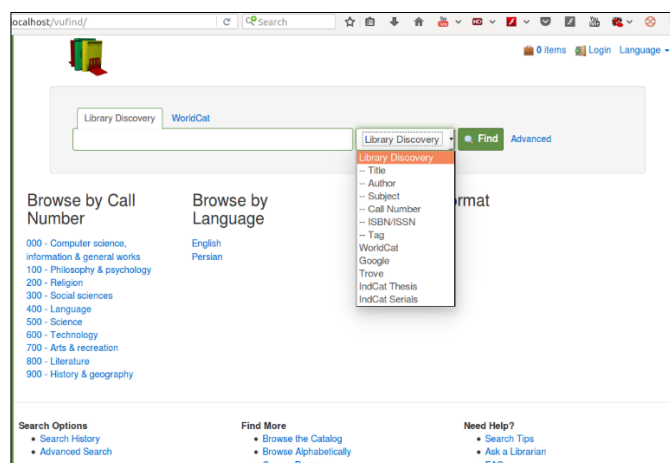

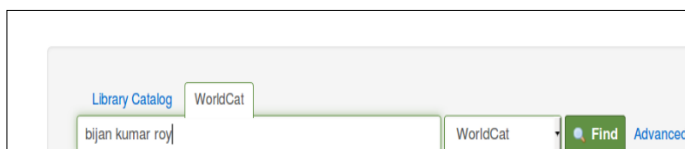**Fig. 13** shows the global access to WorldCat, Google, Google Scholar, IndCat, etc.

Fig. 14: The search result against the search term '*bijan kumar roy*' is displayed below (Fig. 15)
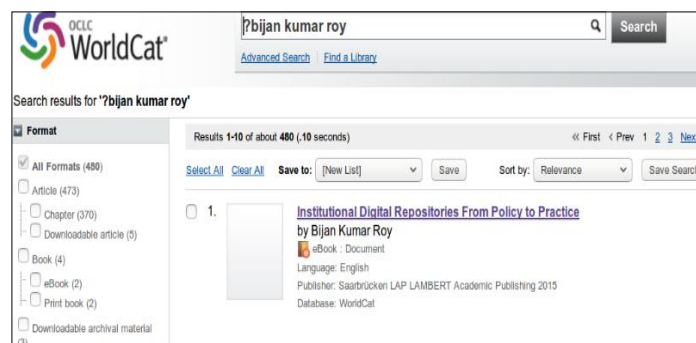

Fig. 15: The search result against the search term '*bijan kumar roy*' is displayed full paper

Full-text Searching

Apart from Simple and Advanced searching, this model supports full-text searching. This is the added advantage of the model, and for this purpose, Tika has been used as a full-text extractor.
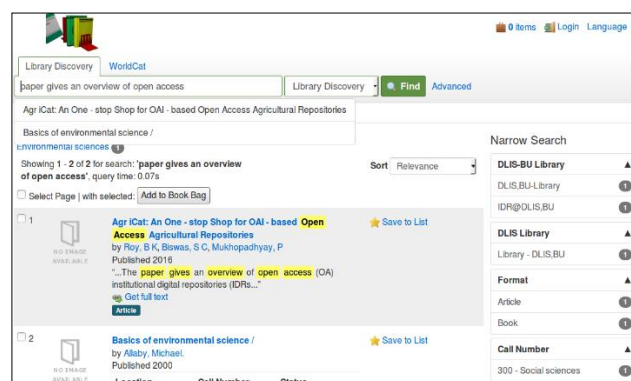

Fig. 16: The search result against the search term, and gets the full-text paper
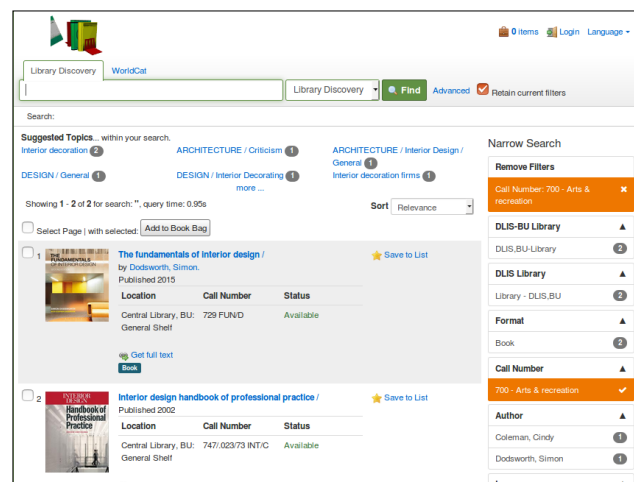
E-book facility

Fig. 17 shows the records against the E-book facility in VuFind in the progressive field.

BENEFITS OF THE STUDY

- Users need to know only a set of retrieval techniques.
- Users don't have to care about the location of the resource.
- Harvesting of metadata in one place allows users to search comprehensively & efficiently.
- As harvesting collects only metadata, searching takes only a fraction of a second to retrieve a relevant document.
- Harvesting allows simple search, advanced search, boolean search & field-level search.

4. LIMITATIONS OF THE STUDY

- Processing takes time.
- A little bit supported highly qualified metadata.
- Processing takes a good Internet connection.
- Minimal & misleading documentation
- Features wait for the user to write them.
- Search by call no, spell check, and usage statistics are not available in VuFind (the best tools of the web-scale resource tool). Still now no polished versions are available.
- The staff are not well-trained.

5. CONCLUSION

The features and utility of the system are included: Simple search, Advanced search, social-networking, advanced social-networking, citation stamp, export-import, search operators, browse by call number, ISBN/ISSN, full-text searching, application of search operators, e-books, Koha with VuFind, and DSpace with VuFind. These are important features of VuFind software.

REFERENCE

1. Breeding M. Library technology guides: Key resources in the field of library automation [Internet]. Library Technology; 2013 [cited 2016 Sep 12]. Available from: www.librarytechnology.org
2. Breeding M. The future of library resource discovery. Baltimore: NISO Discovery to Delivery (D2D) Topic Committee; 2015.
3. Mukhopadhyay PS, Hazra S. Library automation in the next era: Identifying trends and future. In: Mukhopadhyay PS, editor. *The library in the next era.* Kalyani: KULISSA; 2015. p. 277–85.
4. Mukhopadhyay, P. Library automation through Koha. Kolkata: Prova Prakashani; 2008.
5. Mukhopadhyay PS, Barman D. Cloud-based discovery services for next-generation library cataloguing system. In: *Library in the next era.* Kalyani: KULISSA; 2015. p. 133–41.
6. Muller, T. How to choose a free and open source integrated library system. OCLC Syst Serv. 2011;27(1):57–78. doi:10.1108/10650751111106573.
7. O'Reilly T. What is Web 2.0? [Internet]. 2010 [cited 2015 Feb 15]. Available from: http://www.oreilly.com/go/web2
8. OCLC. The future of library systems: Library services platforms [Internet]. 2011 [cited 2016 Jul 16]. Available from: http://www.oclc.org/content/dam/oclc/events/2011/files/IFLA-winds-of-change-paper.pdf
9. OCLC. Libraries at web-scale [Internet]. Dublin: OCLC; 2011 [cited 2016 Aug 2].
10. Sarkar P, Mukhopadhyay P. Designing single-window search service for electronic theses and dissertations through metadata harvesting. Ann Libr Inf Stud. 2010;57(4):356–64.
11. Sarkar P, Mukhopadhyay P. Developing virtual union catalogue of ETDs on health and medicine: A practical approach. In: *Proceedings of the National Seminar on Challenges in Library Management System.* Kolkata: Indian Association for the Cultivation of Science; 2012. p. 334–40.
12. Radfar H. On library 2.0 [Internet]. 2007 [cited 2016 Feb 15]. Available from: http://hoo-ville.blogspot.com
13. Sharon QY, Kurt W. Evaluating and comparing discovery tools: How close are we towards the next generation catalog? Libr Hi Tech. 2010;28(4):690–709. Available from: http://librarytechnology.org/docs/19738.pdf
14. Sharon QY, Melissa AH. Next generation or current generation? A study of the OPACs of 260 academic libraries in the USA and Canada. Libr Hi Tech. 2011;29(2):266–300.
15. UKSG. Impact of library discovery technologies: A report for UKSG [Internet]. 2013 [cited 2016 Jul 30]. Available from: http://www.uksg.org/sites/uksg.org/files/UKSG_final_report_16_12_13_by_LISU.pdf
16. UKSG. [Internet]. 2013 [cited 2016 Aug 11]. Available from: http://uksg.metapress.com/content/b771618u5261r434/p=333af3fb66ad4308b1f1a06f499be3a4&pi
17. VuFind. [Internet]. 2015 [cited 2016 Aug 10]. Available from: http://www.library.illinois.edu/learn/find/vufind/vufind_overview.pdf
18. VuFind. [Internet]. 2015 [cited 2015 Mar 23]. Available from: www.vufind.org/roadmap.php
19. VuFind. [Internet]. 2015 [cited 2015 Dec 26]. Available from: https://vufind.org/vufind/about.html
20. Yang Q, Hofmann M. Next generation or current generation? Libr Hi Tech. n.d.;29(2):266–300.
21. Yang Q, Wagner K. Evaluating and comparing discovery tools. Libr Hi Tech. n.d.;28(4):690–709.