

Seamless Integration of Koha and DSpace for Enhanced Management of Theses and Dissertations in Hybrid Environment: a case of University of Zambia Library

By

Adrian Chisale¹ and Francis Chulu²

¹ The University of Zambia Library P.O. BOX 6049, Livingstone branch, Zambia

Email: adrian.chisale@unza.zm

² The University of Zambia Library P.O. BOX 32379, Lusaka Zambia

Email: francis.chulu@unza.zm

Abstract

In the digital age, academic institutions face the challenge of efficiently managing electronic resources while ensuring seamless access for students, faculty, and researchers. This article explores the feasibility and benefits of integrating Koha, an open-source Integrated Library System (ILS), with DSpace, an open-source repository software, to create a comprehensive solution for managing Electronic Theses and Dissertations and other E-resources in academic libraries. Through a thorough examination of compatibility, functionality, customization, data migration, user training and support, maintenance, cost considerations, scalability and community collaboration, this study provides insights into the practicalities of integrating these two systems (Deng and Reese, 2009). Drawing on existing literature, case studies and best practices, the article outlines a framework for implementing and optimizing the integration of Koha and DSpace, offering recommendations for academic institutions seeking to enhance their library management practices in the digital era. By leveraging the strengths of both systems and fostering collaboration between library staff, IT professionals, and the open-source community, academic libraries can achieve a seamless and efficient management of electronic resources, thereby enriching the learning, teaching, and research experiences of their constituents.

Keywords: *Koha, DSpace, Integrated Library Systems, Repository Software, electronic resources, academic libraries, integration, feasibility, open source, library management, User Satisfaction*

1. Introduction

In the rapidly evolving landscape of academic libraries, the management of electronic resources has become increasingly complex and integral to supporting the teaching, learning, and research missions of academic institutions. The proliferation of digital content, including e-books, journals, databases and multimedia resources, presents both opportunities and challenges for library professionals tasked with acquiring, organizing, and providing access to these materials (Enweani, 2018).

Traditional library systems such as Integrated Library Systems (ILS), have been instrumental in managing physical collections and basic bibliographic data. However, they often lack the robust features and functionalities required to effectively handle electronic resources, such as metadata enrichment, digital asset management and seamless integration with institutional repositories. In response to these challenges, academic libraries are turning to open-source solutions that offer flexibility, customization and cost-effectiveness. Koha, a widely adopted open-source ILS, has gained popularity for its comprehensive suite of library management functionalities, including cataloging, circulation, acquisitions, and serials management. Similarly, DSpace, an open-source repository software has emerged as a leading platform for managing and preserving digital content, enabling institutions to showcase their scholarly output, institutional archives and special collections (Bansode and Dange, 2019).

While Koha and DSpace excel in their respective domains, their standalone implementations may lead to siloed systems, fragmented workflows and duplication of efforts within academic libraries when managing ETDs in hybrid environment. Recognising the need for a holistic approach to electronic resource management, some institutions are exploring the feasibility of integrating Koha and DSpace to create a unified solution that seamlessly bridges the gap between library collections and digital repositories. This integration holds the promise of streamlining processes, enhancing discoverability, and improving user experiences across the entire spectrum of ETDs. By leveraging

the strengths of Koha's library management functionalities and DSpace's repository capabilities, academic libraries can achieve greater efficiency, consistency, and interoperability in managing ETDs (Oboko and Ileri, 2020).

This article delves into the feasibility of integrating Koha and DSpace for enhanced library management of electronic resources in academic institutions. by examining the technical, functional, organizational, and strategic considerations involved in such integration, drawing on existing literature, case studies and best practices. By elucidating the potential benefits, challenges and implementation strategies, this study aims to provide insights and guidance for academic libraries embarking on the journey toward seamless integration of Koha and DSpace (Oboko and Ileri, 2020).

2. Objectives

This paper was guided by the following objectives:

1. To provide a seamless user experience by enabling unified access to both physical and digital collections through a single interface.
2. To enhance the discoverability of resources by synchronizing metadata between Koha and DSpace.
3. To streamline library workflows by automating processes and reducing redundancy in managing resources across systems.

3. Methodology

To meet the research objectives, the following studies were conducted:

Desk research: A comprehensive review of existing literature, including academic papers, case studies, technical documentation, and professional journals, was conducted to gain insights into the integration of Koha and DSpace, as well as best practices in electronic resource management in academic libraries.

Case Studies: Several case studies of academic institutions that have implemented or are considering the integration of Koha and DSpace were examined. These case studies provided

valuable insights into the feasibility, challenges, and benefits of such integration in real-world settings.

Expert Consultation: Interviews and consultations were conducted with experts in the fields of library science, information technology, and open-source software development. These experts provided valuable perspectives on technical considerations, customization requirements, implementation strategies, and potential pitfalls associated with integrating Koha and DSpace.

Surveys and Questionnaires: Surveys and questionnaires were distributed to librarians, IT professionals, and other stakeholders in academic libraries to gather data on current practices, challenges, and preferences related to electronic resource management. The responses obtained helped inform the development of recommendations and best practices for integrating Koha and DSpace.

Feasibility Analysis: A comprehensive analysis of the technical, functional, organizational, and financial aspects of integrating Koha and DSpace was conducted to assess feasibility. This analysis considered factors such as compatibility, customization requirements, data migration, user training, maintenance costs, scalability, and community support.

By employing a multi-faceted methodology encompassing literature review, case studies, expert consultation, surveys, prototype development, feasibility analysis, risk assessment, and implementation planning, this study aimed at providing a comprehensive understanding of the integration of Koha and DSpace for enhanced library management of information resources in physical and electronic resources in academic institutions.

4. Results

Feasibility Assessment: The results of the feasibility analysis indicate that integrating Koha and DSpace is technically feasible, with existing tools and resources available to facilitate integration. Compatibility checks reveal that both systems can be configured to communicate with each other effectively, allowing for seamless data exchange and interoperability.

Functionality Evaluation: The prototype integration demonstrates enhanced functionality for managing electronic resources, including improved metadata management, unified search

capabilities, and streamlined workflows for cataloging, acquisition, and access control. User feedback from usability testing indicates positive reception to the integrated system's features and user interface.

Cost-Benefit Analysis: The cost-benefit analysis reveals that while there are upfront costs associated with customization, data migration, and staff training, the long-term benefits of integrating Koha and DSpace outweigh the initial investment. Cost savings are realized through reduced maintenance costs, improved efficiency, and enhanced resource utilization.

User Satisfaction: Surveys and feedback from stakeholders indicate high levels of satisfaction with the integrated system, citing improved access to ETDs, simplified workflows and enhanced discoverability as key benefits. Library staff express appreciation for the centralized management interface and streamlined processes.

Risk Mitigation: Risk assessment identifies potential challenges such as data integrity issues during migration, technical complexities during integration, and resistance to change among users. Risk mitigation strategies, including thorough testing, staff training, and user support, help address these challenges and minimize their impact on the integration process.

Implementation Roadmap: The implementation roadmap outlines a phased approach to integrating Koha and DSpace, with clear milestones, timelines, and responsibilities assigned. Key steps include system configuration, data migration, customization, staff training, user communication, and ongoing support.

5. Conclusion

Overall, the results indicate that integrating Koha and DSpace for enhanced library management of electronic resources in academic institutions is not only feasible but also beneficial. The integrated system offers improved functionality, efficiency, and user satisfaction, contributing to a more seamless and effective library experience for students, faculty, and researchers.

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