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Adoption and use of FOLIO in Library and Information Center Services: A Case Study

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ABSTRACT

This paper explores the evolution of library services propelled by information technology, focusing on FOLIO, an open-source library management platform hosted by the Open Library Federation. It discusses FOLIO's creation, features, and implementation, highlighting significant case studies from institutions like Chalmers University of Technology and Cornell University. The study underlines the transformative potential of FOLIO, emphasizing its role in enhancing user satisfaction, enabling collaborative resource management, and demonstrating the feasibility of open-source solutions in modern libraries. This study contributes to the ongoing discourse on technological advancements in library science. It will help librarians and scholars in the field to deploy and use FOLIO for enhanced library services.

Key Findings

- **Adoption and Implementation**: Libraries worldwide are integrating FOLIO, with institutions like Chalmers University of Technology and Missouri State University leading its implementation.
- **Case Study**: Implementing FOLIO at Cornell University Library and the University of Alabama, application and uses of FOLIO's features for large-scale research libraries.
- **Electronic Resource Management**: Several libraries have developed ERM programs using FOLIO, demonstrating versatility.

Keywords: FOLIO-Open Source LMS, Koha-Moodle-FOLIO, Library community collaboration, FOLIO-Case Study, Enhanced library services, Libraries empowerment.

INTRODUCTION

Libraries are considered service-driven entities that have transformed into the era of information technology. The increased expectations of library users compelled librarians to adapt the new technology to provide the services (Jha, 2023c). Since the advent of digital technology, libraries have experienced significant transformations to meet the evolving needs of patrons. One well-known example of this change is the open-source library management system FOLIO. It is an open-source, cloud-based, app-store library services platform. It is hosted by the Open Library Federation and is designed as a community collaboration (Leach-Murray, 2019). This paper examines the creation of FOLIO, the Open Library Foundation (OLF) that acts as its host, and how this innovative technology transforms libraries' services. A library should keep up with technological advancements and reinvent itself to meet the ever-changing needs of its patrons. According to Ranganathan's fifth law of library science, libraries never become stagnant. Library management is the key to operating a library; in the twenty-first century, user satisfaction and efficient library management are two of the most important goals of digital libraries. Libraries are not an exception to Darwin's well-known theory of survival of the fittest, which is held almost everywhere. This article discusses the establishment of FOLIO and the Open Library Foundation, which serves as its host, and how this cutting-edge technology is changing libraries' services. With the help of FOLIO, an open-source library management software, libraries can organize their materials, operations, and services differently. This study also examines the attributes, history, and importance of the OLF product FOLIO. This research looks at the teamwork involved in developing

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FOLIO and its main features, advantages, and potential challenges for libraries that decide to adopt it. No doubt, an adequate replacement for conventional proprietary systems is FOLIO, an open-source library management system. This platform can drastically change library services and the user experience because of its flexibility, affordability, and ease of use. (*Kulkarni, et al., 2023*). FOLIO offers traditional resource management features and can be expanded into additional institutional domains. FOLIO also provides us with a foundation to grow in library collaboration because FOLIO is still evolving and expanding, so we may never need to move to a different integrated library system (*Colt & Howell, 2021*). FOLIO's integration capabilities to those of other open-source systems, such as Koha and Evergreen, make it one of the most popular cutting-edge open-source library management software. Libraries worldwide are integrating FOLIO, with institutions like Chalmers University of Technology and Missouri State University leading its implementation.

METHODOLOGY

This study is based on a qualitative method using content analysis techniques. An extensive review of literature on the application and use of FOLIO, open-source OSS in libraries and information centers, was sourced from Google Scholar, Taylor and Francis, and Scopus-indexed journals. It discusses the collaborative efforts in creating FOLIO. It presents case studies of institutions adopting this OSS and the challenges and advantages of using a cutting-edge open-source LMS. This study introduces FOLIO's current status and potential to bring the technology revolution in library and information center services.

FOLIO work structures

The technology developed by FOLIO is meant to be freely accessible, and interested parties are also welcome to contribute to its. The FOLIO teams are diverse in terms of both background and culture. One of this project's strengths and significant advantages is that it integrates various concepts and ways of thinking. Librarians, database engineers, front-end and back-end developers, project managers, quality assurance specialists, and designers of user interfaces work together in working groups known as SIGs. Collaboration occurs among the FOLIO community on several levels. Stakeholders that make strategic decisions include EBSCO, index data, and the community surrounding open libraries. The Product Council Executive Committee and the Product Council (PC) make the working decisions. The Technological Council, a PC branch, is responsible for making decisions regarding the technological foundation of the platform (*Hemme, 2022*).

Core features of FOLIO

Comprehensive circulation management: This FOLIO feature helps libraries effortlessly handle checkouts, check-ins, renewals, holds, and fines. The system allows various loan policies and customizable regulations to accommodate different lending practices.

Cataloging and MM: Libraries can effectively catalog various resources, such as books, journals, multimedia, and digital items, using FOLIO's robust cataloging tools. While ensuring data consistency, the centralized MM system facilitates efficient record production and maintenance.

Managing acquisitions and electronic resources: FOLIO streamlines the acquisition process and helps libraries manage orders, spending plans, and invoices. The solution simplifies license tracking and e-resource management, supporting digital and physical resources.

Analytics and reporting: FOLIO's powerful analytical and reporting capabilities provide an understanding of library utilization, resource engagement, and material circulation. These data-driven insights facilitate informed decision-making and improve library services. EBSCO FOLIO includes an analytics tool called Panorama Essentials, which has a single dashboard for collecting, presenting, and modifying data about the library and its patrons.

User administration and authentication: Libraries can use the user administration tools in FOLIO to handle patron accounts, authentication, and access control. Libraries can set up user roles and permissions to ensure appropriate access to different system capabilities.

Mobile accessibility: Receptive Web design principles enable FOLIO to work across multiple platforms, such as

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tablets, smartphones, and PCs. This function enhances the library user experience by offering seamless accessibility.

FOLIO with Cloud: Considering the hardware resources that FOLIO currently requires, its installation on the cloud is meant to improve its services and make it a more futuristic platform by providing maximum uptime, elasticity, resilience, security, etc.

Integration of FOLIO with other open-source library management systems

The specifications listed below outline different ways that Koha and Moodle integrate with FOLIOs:

Application 1: Koha + Moodle via FOLIO

A learning management system and a library system are found in most academic libraries. It would be beneficial if these systems could interact. One improvement could be to develop a Koha app at the FOLIO app level. This app would translate between the OKAPI API and the restful API. Communication with the holds API(s) in Koha would also be needed to assist with holds.

Those APIs could potentially be:

After receiving messages from the OKAPI layers, the Koha holds app will parse and call the relevant Koha

API and prepare the answer for return to the OKAPI layer.

Koha -> | FOLIO Koha Hold App -> Okapi -> Moodle App | -> Moodle

A Moodle app would also need to be created to implement this on the Moodle end. This will serve as a framework for considering how the FOLIO OKAPI layer can be connected to different resources or systems. Figure 1 *illustrates the* integration of *Koha + Moodle via* FOLIO.

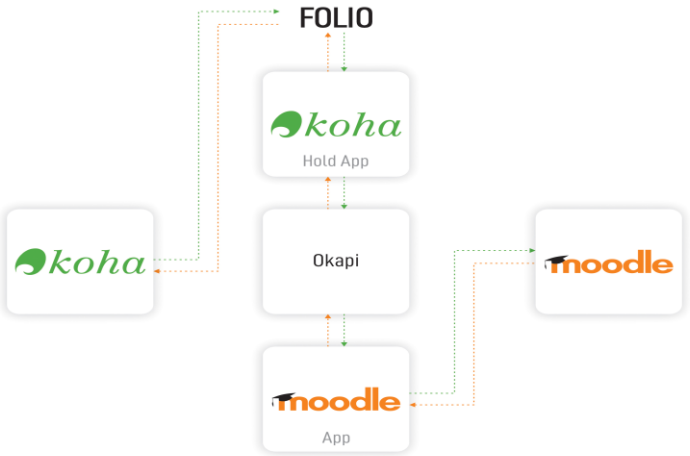

Figure 1: *Koha + Moodle via* FOLIO

Available at https://www.catalyst-eu.net/blog/2017/10/12/koha-plus-folio-solution-connected-library-services

Application 2: Course Reserves App

Course reserve apps are another application. It can use the FOLIO user interface layer, the foundation for a Koha material collection. Figure 2 *illustrates the* FOLIO course reserves app.

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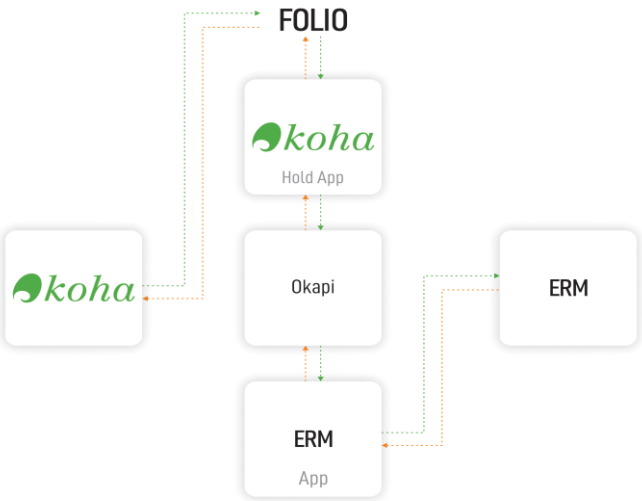

Figure 2: FOLIO course reserves app

Available at https://www.catalyst-eu.net/blog/2017/10/12/koha-plus-folio-solution-connected-library-services

Application 3: Institution-wide application

Koha has a strong reporting engine that gives staff and users complete read access to the database. Any report can be exported as a JSON file, visualized, and set as public or private. While we do not plan to replace this reporting engine, we may consider merging reports from other applications. Using FOLIO for this is sensible when multiple connected applications are present. Figure 3 *illustrates the* FOLIO institution-wide application.

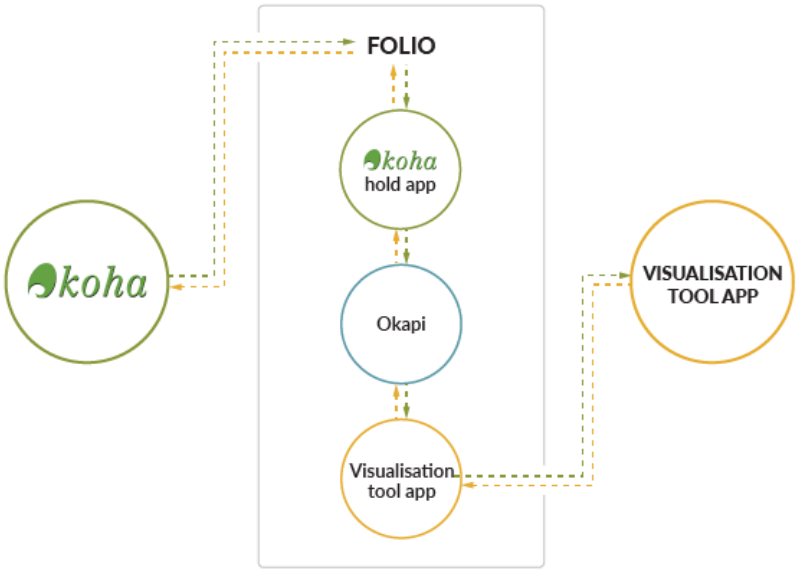

Figure3: Institution-wide application

Available at https://www.catalyst-eu.net/blog/2017/10/12/koha-plus-folio-solution-connected-library-services

Case study

Libraries worldwide are beginning to integrate FOLIO, the open-source Library Services Platform (LSP), which

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marks a significant milestone in generating the first apps, features, and functionality. Institutions of all sizes (bibliographic records and users) have implemented FOLIO (https://folio.org). Chalmers University of Technology in Sweden was the first library to use FOLIO, going live in 2019. Missouri State University was the first academic institution in the United States to implement FOLIO. It is fully operational at Simmons University, Warner University, St. Thomas University, and Washington & Jefferson College. The University of Alabama has been at the forefront of design and testing at the scale necessary to create the features and functionalities for sizable, operational research libraries, according to Dean of Libraries Don Gilstrap. The feasibility of this innovation-driven open-source library services platform has been demonstrated, and development has been guided by substantial real-world testing of FOLIO (https://www.prweb.com). It is satisfying to know that, as the University of Alabama development team gets ready to deploy FOLIO, we are doing so as an organization that offers EBSCO, the FOLIO Community, and the open-source community helpful information. Additionally, several libraries have chosen to develop Electronic Resource Management (ERM) programs using FOLIO. The ZBW Leibniz Information Canter for Economics in Kiel/Hamburg has been using FOLIO ERM to run its GBV network library since May 2020. ERM is currently operational in Leipzig University Library as well. According to University Librarian Boaz Nadav-Manes, Lehigh's shift to FOLIO is the next phase in the university's strong commitment to open-source and community-driven solutions(https://folio.org). Cornell University is now using the FOLIO ERM and has switched to the FOLIO LSP, and Duke University will deploy the FOLIO ERM. Additionally, Texas A&M University uses FOLIO based on features.

Selected case studies of libraries using FOLIO

Case Study 1: *Implementation of FOLIO at Cornell University Library*

The Cornell University Library switched to the open-source FOLIO platform on July 1, 2021. In early 2010, Cornell University started looking into ways to move away from our Voyager library management system. After developing FOLIO for several years, Cornell assembled a team in 2019 to oversee its deployment, which became online in July 2020. Each library's major departments—reporting, finance, metadata management, access services, user testing, acquisitions, serials processing, cataloging, resource management (ERM), training, infrastructure, integrations, discovery, and data migration—had a representative on the Implementation team (Howell & Colt, 2021). Many other library employees joined FOLIO community special interest groups (SIGS), assisted with training, or became subject-matter experts (SMEs) in addition to a "lead" from each of these areas. To oversee the project, the library also employed a project manager with expertise in information technology. At the same time, Cornell was switching from ProQuest Intota to FOLIO ERM as their ERM system. Due to its independence, this initiative, headed by Cornell's Acquisitions and E-Resource Strategy Librarian Peter McCracken and SME Emma Raub, Electronic Resources Librarian, could proceed. In January 2020, Cornell successfully implemented FOLIO ERM.

Case Study 2: *Implementation of FOLIO* at Duke University Libraries

In July 2020, the Duke University Libraries deployed FOLIO to handle licenses for electronic resources. Duke University did not have an ERM system before deploying licensing and supporting apps in July 2020. It used a variety of tools and methods to handle e-resource licensing. Hard copies of the digitized license paperwork were kept in filing cabinets, the workflow was controlled in Trello, and the documents were filed in SharePoint. Duke University Library has since migrated digital files to Box to take advantage of its more robust permissions and restrictions (Wickes et al., 2022). Being able to avoid finding out how to move any existing ERM data into FOLIO was one advantage of not having an existing ERM system. After a year of use, the team has better understood how effectively FOLIO ERM satisfies workflow requirements.

CONCLUSION:

FOLIO is an emerging learning management system (LMS) that is a strong alternative to traditional systems, offering significant improvements to library services in the digital age. Its adaptability, affordability, and user-friendliness can enhance the library experience for patrons and staff. FOLIO helps libraries stay relevant and competitive in the evolving digital landscape. It features Project ReShare, which allows different libraries to share resources more effectively than other open-source systems like Koha and Evergreen. While Integrated Library Systems (ILS) may struggle to maintain infrastructure in real-time, FOLIO aims to create a unified platform for software integration,

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improving user engagement with library collections. FOLIO does not currently support Online Public Access Catalogs (OPACs), but this will be addressed by integrating a search tool from Stanford University. As library users' needs evolve beyond traditional borrowing, FOLIO seeks to develop a fully automated service platform that meets librarians' expectations and encourages collaboration. Discussions around AI applications suggest FOLIO's potential as a leading library program. This research advocates further exploring FOLIO's benefits in enhancing library operations. This study will help librarians and scholars in the field to deploy and use FOLIO for enhanced library services.

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