# FOLIO: Transforming Library Management with Open-Source Innovation

Nidhi* and Margam Madhusudhan**

*Research Scholar, DLIS, University of Delhi, Delhi-110007, India*
*Email: nidhiyadav1703@gmail.com*

**Professor, DLIS, University of Delhi, Delhi-110007, India*
*E-mail: mmadhusudhan@libinfosci.du.ac.in*
*ORCID: https://orcid.org/0000-0002-1174-2099*

**ABSTRACT**

This article explores the transformative advancements introduced by FOLIO (Future of Library is Open Library), an open-source library management system that marks a significant shift in library technology. FOLIO provides a modular and flexible framework designed to cater to the varied needs of contemporary libraries. By analyzing its key features, benefits, and challenges, this paper enhances our understanding of FOLIO's crucial role in the future of library management. The article investigates patterns of adoption, user experiences, and the broader impacts on library information systems, offering insights into how FOLIO influences library evolution. Embracing open-source principles, FOLIO aligns with the changing landscape of libraries, promoting a collaborative and adaptive environment. As libraries seek more flexible and innovative solutions, FOLIO stands out as a vital force in the transformation of library services, exemplifying a pathway to sustainable, effective, and user-focused library management practices.

**Keywords:** Open-Source Software, FOLIO, Integrated Library System, Library Services Platform, Library Management.

*Corresponding Author.

## 1. INTRODUCTION

Library management tools in this fast-changing technological environment have proven to be a boon for library professionals. The history of library automation dates back to the mid-twentieth century, as the discovery of computers triggered enthusiasm for automating processes in libraries. A development of the initial systems, which were mainly in the areas of cataloguing and circulation, to provide better means to execute these tasks. Gradually, with the increasing use of technology in libraries, the method and scope of LMS broadened to include additional patron services. The transition to integrated library systems began in the 1980s, which included modules for acquisitions, cataloguing, circulation, and online public access catalogues (OPACs).

During this period, the majority of systems were proprietary, which made it difficult for libraries to customize them and frequently resulted in vendor lock-in. Libraries developed the idea of an open-source library management system to gain greater control over service and a more adaptable system. There are now fully open-source systems available, including Koha and Evergreen, that grant libraries more independence to modify systems to meet the demands intrinsic to specific organisations (Breckenridge, 2013). FOLIO (Future of Library is Open) is an example of a relatively recent development in this area that follows the concept of

open-source innovation, providing library-suitable and scalable solutions. The history of Library Management Systems demonstrates that the desire for improvement is endless, and there is always a need to work smarter, faster, and more customer-focused as Library services evolve.

## 2. EMERGENCE & MOTIVATION BEHIND FOLIO

The emergence of FOLIO is a way of addressing one of the common problems for many libraries – financial constraints. In most cases, proprietary systems require additional expenses due to licensing fees. Open-source solutions like FOLIO make it easy to save costs, which enables librarians to utilise resource smoothing (Stallman, 2002). This financial sustainability aligns with the broader library agenda of serving their communities with useful services in the future.

Furthermore, FOLIO users are aware of current trends in information transmission in modern society, which has also led them to adopt traditional paper-based methods for accessing websites. Modern libraries are being called upon to provide and monitor a more complex range of resources, including books, periodicals, electronic materials, and video content. FOLIO appeals to such an environment due to its modular structure, which provides a platform for integrating various resources. There is a need for libraries to be flexible to changes in their customers' information requirements. The development and reasons behind FOLIO are a result of the necessity to cope with the diversity of collections, respect for the principles of cooperation inherent in its open-source nature, and the legal challenges that libraries face. FOLIO stands as a testament to the library community's dedication to embracing innovative solutions that enhance the efficiency and effectiveness of library management systems.

## 3. LITERATURE REVIEW

Liu (2021) notes that "FOLIO was launched in 2016 as a result of collaboration among EBSCO Information Services, Open Library Environment (OLE), and Index Data. It is currently managed by a single-member limited liability company (SMLLC), a subsidiary of the Open Library Foundation (OLF), a nonprofit organisation. Interest in FOLIO has increased significantly due to its adaptable and technology-driven design, which makes it suitable for a wide range of scenarios. FOLIO's architecture is highly interoperable, enabling different components to communicate through a unified framework. As noted by Murray (2023) and Chauhan et al. (2023), the core of the system is the Okapi gateway, which supports the integration of loosely connected applications and services, ensuring functional cohesion across analytics, circulation, acquisitions, and inventory management.

FOLIO's modular and user-friendly structure sets it apart from traditional Integrated Library Systems (ILS), contributing to its appeal among library professionals, including those in India. However, despite its promising features, FOLIO has yet to achieve widespread adoption (Panda & Kaur, 2024). These authors emphasized the unique capabilities of FOLIO, underscoring its transformative potential for libraries and encouraging librarians to consider it as a means of enhancing services to meet patrons' evolving needs in the digital era.

Colt and Howell (2021) highlighted FOLIO's successful implementation at Cornell University, where it proved to be a reliable and sustainable ILS. Zhou et al. (2023) examined the adoption of FOLIO at China's largest public library, detailing both the advantages of implementing the system and the challenges encountered during the rollout phase.

## 4. OBJECTIVES OF THE STUDY

The main objectives of the study are:
- To evaluate the Key features, benefits, and challenges of FOLIO
- To examine the Impact of FOLIO on Library Management
- To explore the Implications of FOLIO for Future Library Management

## 5. FEATURES AND ARCHITECTURE OF FOLIO

It encompasses all functions in all domains that enable the library's operation, including circulation, acquisition, cataloguing, and electronic resource management. Each domain has sub-applications, such as check-in and check-out

applications. For instance, notable characteristics encompass the capacity to:

- **Modularity**: A lattice structure is observed in FOLIO, which comprises many microservices; librarians can select the services they require, making the entire system flexible and scalable.
- **Interoperability**: By following open standards, FOLIO minimises the problem of integration by enabling integration with other library systems and third-party tools.
- **User-Centric Interface**: A key part of FOLIO's goals is a user-facing design that focuses on both library staff and users, providing a better experience when using the system.
- **Unified Resource Management**: FOLIO is versatile in handling various types of content, including traditional print materials, electronic resources, and multimedia content.

## 5.1  User Interface/User Experience (UI/UX)

However, one of the most important components of FOLIO is the User Interface (UI) design. We now possess fundamental principles that can be adhered to achieve consensus among developers, uniformity, and seamless integration across all FOLIO applications. All the logos in FOLIO are designed using MOTIF, FOLIO's design system. As a result, the MOTIF consolidates the visual appeal, style, components, and user engagement of FOLIO applications. The Stripes framework provides a predefined set of controls that users can utilise to build FOLIO apps with minimal coding. Moreover, comes with a set of predefined, screen UI controls, widgets, and subcontrols that make up an interface module. Stripes act, for instance, like data gatherers, traffic controllers, identity checkers, and contextualizers. This post explains how developers and designers can use the resources of the FOLIO UX website to create FOLIO applications with the aid of MOTIF. - User experience prototypes: Engulf working interactive prototypes of its FOLIO applications, the proposed system brings out the visual and the tactile aspects. - UX guidelines: Documentation about the design elements of FOLIO - User experience assets: These downloadable resources encompass fonts, colours, and icons. The FOLIO library encompasses all the constituent elements employed in the creation of applications.

## 5.2  Modular Design and Customization

A central component of FOLIO's architecture is the Okapi API gateway. The core web services of Okapi are specified using RAML (RESTful API Modeling Language). All requests to APIs are directed through Okapi, ensuring efficient communication with backend modules. Within the Okapi ecosystem, modules are defined based on their behaviour, or interface contract, rather than their internal contents. This means there is no precise definition of a module as a package or archive with a standardized file structure. Specifics regarding file structure are delegated to the implementation of each module, allowing Okapi server-side modules to leverage various technology stacks. While some modules may include persistent storage implementations, it is noteworthy that this is not a mandatory requirement for all modules. The flexibility in design and technology choice enhances the adaptability and extensibility of FOLIO's architecture. (Figure 1)
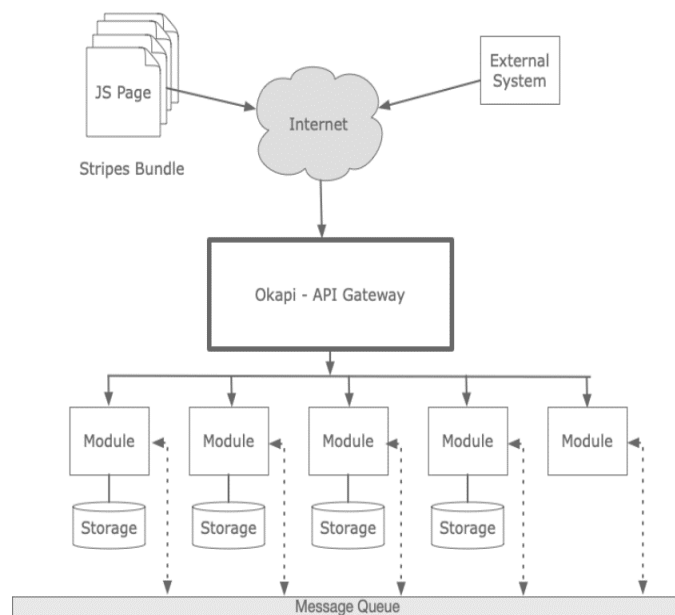


**Figure1:** Okapi –API Gateway
*(Adopted from: https://folio.org/platform/architecture/)*

FOLIO has APIs throughout the system, allowing libraries to easily connect to external systems, such as learning management systems or student information systems. The FOLIO collaborators offer a wider range of applications. It is generally recommended that all FOLIO applications adhere to the

standardised usability and visual design requirements. FOLIO supports an Agile development methodology, specifically Scrum. The scrum teams at FOLIO consist of a Scrum Master, Product Owner, and developers. Currently, the FOLIO project comprises approximately twenty teams. Every team is responsible for a specific set of functional areas within library services. Specialized teams are responsible for addressing system-wide problems and managing the fundamental operations of the FOLIO Library Services Platform (LSP).
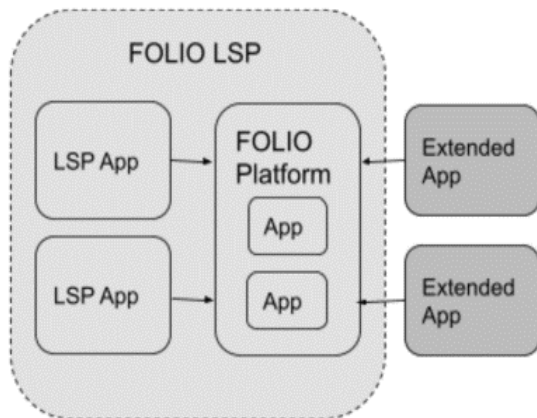


**Figure2:** FOLIO Apps
*(Adopted from: https://folio.org/platform/architecture/)*

## 5.3 User-friendly Interface and Accessibility

FOLIO is specifically designed for cloud deployment, and containerization is widely employed in both community and live production settings. PostgreSQL is commonly used as the backend for relational storage. The system relies heavily on the utilization of Kafka and ElasticSearch technologies. Several hosting companies utilize AWS, while others, such as numerous self-hosted deployments, do not.

## 5.4 Front End

The front end of FOLIO is comprised of single-page apps constructed using the Stripes toolkit. The objective is to facilitate the development of UI modules that interact with FOLIO's RESTful Web services. Stripes comprises multiple distinct JavaScript libraries that collaborate. Stripes-core is often configured by specifying a collection of UI modules to be included. It utilises a Webpack plugin to consolidate these modules into a single bundle of HTML, CSS, and JavaScript resources. Each module utilises UI elements from Stripe components and

other relevant sources. These elements employ stripes to connect and perform functions such as searching, viewing, editing, and managing data stored by the FOLIO web services. Additionally, logging information is recorded using a stripes-logger when required.

## 5.5 Backend

Typically, back-end modules are developed as Java apps that make their functionality available through Okapi, which serves as FOLIO's API gateway. The web service endpoints in Okapi can be categorized into two main parts: the generic module and tenant management APIs, and the endpoints for accessing module-provided interfaces that are particular to business logic, such as Patron management or Circulation. Spring Way, a Spring framework, has been utilised to develop modules in recent times.

## 5.6 Community Driven

FOLIO is a product developed through the efforts of professionals, including librarians, developers, and vendors; it is the product of the community. Existing FOLIO users offer their expertise, including the necessary information and requirements for FOLIO implementation's features and characteristics. Developers utilised this information to introduce modules and platforms into the market that address the unique needs of libraries. This is because vendors provide key installation, hosting, and support services that significantly contribute to the integration and functioning of FOLIO within a library system. This witty approach helps ensure that an extensive development process for FOLIO takes into consideration the views and expertise of members of the involved community.

## 6. BENEFITS OF FOLIO IMPLEMENTATION

### 6.1 Increased Operational Efficiency

FOLIO is marketed as a proactive solution that meets the expectations required for the next generation of library service platforms. Watkins (2018) designated the five Ps as FOLIO's base: flexibility, modularity, extensibility, modernity, and affordability. FOLIO has attracted many partners and contributors towards realising this vision. FOLIO,

throughout its development life cycle, involves the use of Librarians to ensure that their needs are adequately captured and comprehensively covered in all necessary segments of FOLIO, thus ensuring the smooth working of applicable user interfaces. The FOLIO project is well-staffed with employees from various libraries and service providers who need to analyse different concerns and interfaces to address the needs of multiple libraries. More importantly, the necessary product qualities that meet the actual needs of library staff and library patrons are the fundamentals of the product development process. It provides users with an efficient voice and also ensures that users' needs can be well communicated, discussed, and addressed throughout the development and testing process of the library platform. Library organisations have in-depth knowledge of the platform solution and its processes, ensuring that it adequately addresses specific needs, is easy to use, and eliminates complexities that may require additional training time and associated costs (Watkins, 2018).

## 6.2 Enhanced Collaboration and Resource Sharing

FOLIO's advantages include a variety of possibilities for implementation, updates, personalisation, and configuration of the platform. The FOLIO library service platform is based on a microservice architecture that consists of some small, self-sufficient services working in harmony. Construction and upkeep difficulty are caused by the traditional system taking the form of a monolith, which comprises a large codebase; hence, development tends to be difficult. In contrast, microservices are characterised by loose coupling, where each simmers in on one area of business operations at a time. This modularity allows them to function independently, as the services are accessible through remote API calls. Microservices enable the use of different technologies, thereby improving performance and making it easier to scale and modify services without impacting other services. Deployments, integration, and the development cycle are particularly beneficial for agile development, as Scrum teams can work on more items simultaneously than before. Currently, FOLIO does not support any changes in the release cycle. The libraries should then conduct assessments of the modules and software that have already been released to determine if they are

ready for upgrades or relocation of software versions. In library management, which is characterised by constant transformation, this strategy enables improvements in flexibility, speed, and usability.

FOLIO implementers continue to receive assistance from service providers regarding FOLIO, as other developers of integrated library systems or library service platforms offer similar support. Besides, they may fast look for solutions thanks to the FOLIO ecosystem, which is available to them.

The FOLIO LSP represents an instance of open-source technology, driven by the requirements of concerted design and collaboration that define the entire technology behind the FOLIO thesis. In addition to glossy marketing brochures, the FOLIO community is broad and vibrant, offering a wide array of instant contact methods. As a result, FOLIO implementers are no longer reliant merely on the goodwill of their assigned service providers for assistance in case any problems arise.

When libraries acquire commercial Integrated Library Systems (ILSs) and Library Service Platforms (LSPs), they are sometimes limited to passively accepting pre-packaged solutions and excessive price quotes offered by system or platform providers.

## 6.3 Cost-Effectiveness and Sustainability

Libraries occasionally have to acquiesce to unilateral price hikes requested by providers after a specific duration of product usage. This issue has been exacerbated by the growing consolidation of system providers in the library business and the subsequent decrease in available product options. FOLIO, being an open-source service platform, offers cost-effective solutions for libraries. The platform is free to use; however, other commercial options are available around it. Libraries have the option to deploy and host their services independently or choose to hire service providers to handle deployment, support, and hosting on their behalf. In the latter scenario, service providers can independently or collectively offer one or more services. Libraries may exercise greater influence in pricing negotiations by comparing various options among multiple firms that offer similar services.

FOLIO is now undergoing rapid development. Due to the aforementioned factors, it is reasonable to expect that the FOLIO LSP will be able

to circumvent certain unavoidable issues that are commonly associated with traditional ILSs and LSPs, as well as the business models that revolve around them. Nevertheless, it may be premature to assert that the FOLIO LSP has reached a level of maturity where it encompasses all the necessary functionalities required by libraries and operates flawlessly in all its characteristics. To create an automated service platform that fully meets the expectations of librarians in terms of functionality and performance, a greater number of libraries and corporations must actively participate in the project and engage in extensive collaboration.

Sustainability holds a crucial role in the decision-making process for libraries considering the adoption of software packages like FOLIO. The enduring viability of connected businesses and the establishment of public trust in open-source communities are pivotal factors. In the case of FOLIO, a cooperative network of libraries, with key players such as EBSCO, provides both voluntary and monetary input to ensure FOLIO's continuation. Commercial services form an integral part of the ongoing development of the FOLIO system, especially in the course of its construction and interacting with 'standing alone' library implementations.

In addition to introducing community-led systems that Seek Knowledge and Learning from the ideas and Practices of earlier examples, such as Koha, FOLIO envisages a business model that comprises commercial elements and actively engages the community. This collaborative model not only provides for continuous support but also enhances the general robustness of the system. Furthermore, external resources available for donations and fundraising were confident that the project would improve over time. These projects can be expected to last their lifetime, with their commercial operations being the primary factors supporting this longevity in most projects. A strong donor base or grant support significantly enhances project prospects, and Harlan's forward-thinking approach hovered in the background, ensuring that developed methods in library technologies do not become obsolete over time.

## 7. ADOPTION CHALLENGES AND RESISTANCE

"The technical design of FOLIO is deeply influenced by the requirements of modularity, with the establishment of standard specifications and an emphasis on machine-readable API descriptions. While FOLIO's modular design has proved advantageous, it also introduces difficulties, including cross-module searching and data consistency" (Taylor, 2022). There are some hurdles that FOLIO would want to overcome, among them is the lack of professionals known as SysOps who can deploy and maintain FOLIO using microservices-related technologies. All the same, the ease of using the platform's technological versatility implies that the developers must have an easy time learning microservices. According to an IBM survey, there is a shortage of skilled workers in IT companies; however, it is considered a positive reason for finding talented employees, rather than a problem that cannot be resolved (IBM Corporation, 2021). This alarming state of affairs may lead to the introduction of more microservices into the organisation. However, libraries can implement the FOLIO microservices library service platform within their organisation by appointing administrators, training faculty, utilising available resources, or conveniently leveraging various commercial services.

Even the Frontline Outreach Library Information Organisation (FOLIO) system, also referred to as FOLIO, is still evolving and has not yet reached its full potential. More work needs to be done to improve the system's performance by adding new capabilities or enhancing existing ones, so that it will be more stable and perform better in its intended operation.

Using a moderate level of Explanatory capacity did not prevent subjects from expressing apprehensive feelings that arose from using the FOLIO LSP system over time, as they could observe that FOLIO LSP was improving with each update.

Additional subjects currently being debated within the FOLIO community include the more precise delineation of module borders and the minimisation of dependencies. There is also an ongoing effort to enhance documentation by ensuring its uniformity and comprehensiveness. Furthermore, there is a focus on automating testing procedures and other related tasks. Both the provision of ideas and

resources, as well as faith in FOLIO's ability to deliver value, are crucial in resolving these issues. Participation also fosters confidence as the FOLIO LSP continues to improve in functionality and efficiency with every update. The decision to select FOLIO is predicated on logical examination and discernment. Investing in technology and human resources with a future-oriented perspective is a time-consuming process.

## 7.1 Data Migration and System Integration

"Data migration is the process of transferring data from an existing system to a new system. The new system may not be able to accept data directly from any existing system, as its architecture may differ significantly from that of the existing system. Hence, it needs data transformation. Data transformation is the process of transforming data from one format (source system) to another format as desired by the new system (target system)" (Sahoo & Saika, 2019). Library automation is crucial for the effective operation of all libraries. To automate library activities, customers use software that is either proprietary or an integrated library management system (ILMS). This stance applies to library administrators who undertake to switch over to the new Integrated Library Management System (ILMS) and face the challenge of data migration. However, data migration issues arise when transitioning from one ILMS to another, as user input may be incomplete or lack sufficient information for precise rewriting. Systematic data migration and retrospective conversion are processes that can only be performed in a highly systematic manner. Off-the-shelf as well as customised packages are utilised to implement certain processes or aspects of the library.

## 7.2 Retrospective Conversion (ReCON)

Data migration is a crucial element when transitioning from one library management system to another. Since the available library data is a significant benefit that cannot be easily incurred due to required funds, labour, and time, it is necessary to maintain or, rather, protect it. Given such a situation, converted pages facilitate the transition of information. Inverse cataloguing, also known as catalogue retraumatization, typically referred to as ReCON in library and information centres, involves accessing an existing print catalogue and converting it into a digital, machine-readable format. ReCON refers to the efficient and cost-effective conversion of a printed library catalogue into a format that a machine can read. This process follows established standards to ensure that the catalogue can be easily searched using a machine. (Comprehending MARC Bibliographic: Sections 1 through 6, 2022). Retrospective conversion, as defined by Harrod's Librarian's Glossary, refers to the process of converting an existing catalogue, either partially or completely, into a machine-readable format. This is in contrast to the conversion of records that are currently being created.

## 7.3. Community Support and Development Challenges

FOLIO employs the Apache Licence, Version 2.0 for its collaborative and open-source software development. According to the license terms, anyone is permitted to use, modify, and distribute code from the FOLIO project, even for commercial purposes, without incurring royalty payments. However, it is necessary to provide appropriate notices as mandated by the license. This lenient regulation facilitates the promotion of FOLIO and also simplifies the process of forking code. How may one facilitate the integration of locally generated features into other FOLIO implementations? Both the FOLIO community and the implementers face a significant hurdle.

The individuals within the FOLIO community exhibit diversity in terms of geographical regions, cultural backgrounds, and individual requirements. The process of decision-making is often time-consuming because it requires thoroughly considering all perspectives. Simultaneously, the Community necessitates additional development capacities, such as coders, product owners, system operators, development operations specialists, project managers, and others, due to the expanding scale of the FOLIO project. The wide range of demands and the restricted capacity for development prevent the prioritised development tasks from meeting the immediate needs of each member library. An illustrative instance is that libraries in China prioritise artificial intelligence, whereas libraries in Europe and America harbour reservations regarding the utilisation of AI technologies due to privacy and/or other reasons.

FOLIO can emerge as a leading library system and platform in the foreseeable future.

Despite the imperfections of the FOLIO LSP, the advantages of implementing it justify the commitment of time, effort, and financial resources.

# 8. FUTURE IMPLICATIONS AND TRENDS

## 8.1 FOLIO's Impact on Future Library Technologies

FOLIO is an open-source library services platform designed to revolutionise library services and enhance the library experience for both staff and users. This is a community-owned project that can be tailored to suit the specific requirements of individual libraries. Due to FOLIO's microservices architecture, libraries can select the required modules and effortlessly incorporate them into existing systems. This leads to a more efficient way of distributing resources in a library, as there will be no need for overly expensive and complex systems. It is also tailored to cater to the current period, as it features an application that is easy to use in terms of navigation. With FOLIO in place, libraries can enhance their operational processes, achieve cost efficiencies, and provide better service to customers.

Kulkarni et al. (2023) stated that FOLIO is a suitable replacement for traditional systems, integrating much more than their collective services to enhance library operations and patronage. The system's flexibility, ease of use, and affordability make it an ideal choice for libraries seeking to modernise their operations. While FOLIO is a great tool that libraries can use to move into the present information age, it is also a revolutionary technology that allows libraries to be responsive to the information landscape in which they find themselves. Although FOLIO is gaining popularity, there is currently limited empirical research on users' behavioural intentions towards the system and their perceptions. However, it is envisioned that the unique open-source platform FOLIO will be successful and grow due to the efforts of the library community and their continual R&D activity. While FOLIO is starting to garner attention, there is still relatively little research on user attitudes regarding FOLIO. However, the innovative open-source system, FOLIO, is expected to continue its growth and remain successful due to further expansion of collaboration efforts and ongoing research by the library community.

FOLIO is playing a critical role in shaping the future of library management by providing a comprehensive, flexible, and cost-effective solution for libraries. As libraries continue to evolve in the digital age, FOLIO is well-positioned to help libraries meet the challenges of the future and provide better services to their users.

## 8.2 Potential Integrations and Collaborations

FOLIO, which stands for Future of Libraries is Open, is a new and active movement working toward establishing a next-generation library services platform (LSP). FOLIO was launched in 2016 as a common effort of EBSCO, OLE, and Index Data. The project was funded by EBSCO as well as other collaborators. FOLIO is a continuation of the Kuali OLE open-source project, which the Open Library Foundation, a nonprofit organisation, currently manages. FOLIO provides an implementation of an Integrated Library System, as well as management of print and non-print collections, along with their respective content management systems or physical inventory management systems for collections. The system is a multifaceted, multi-tenant, cloud-based application, with its operations and interface both web-based.

FOLIO has a Special Interest Group (SIG) of subject area experts from libraries, developers, and vendors. The Special Interest Groups (SIGs) focus on specific functional areas, including metadata management, user management, consortia, reporting, electronic resource management, acquisitions, and other related areas. The Special Interest Groups (SIGs) play an active role in fostering the expansion of the FOLIO project, guaranteeing its ability to adapt to the evolving needs of the library community. FOLIO is performing very well with this policy and regularly updates its software every four months, introducing three new updates within the year. FOLIO has acquired a vast network of libraries, including some of the well-known ones, such as Boston University, Cornell University, Duke University, Missouri State Libraries, Texas A&M University Libraries, the University of Chicago, and the University of Glasgow, among many others.

## 8.3 Evolving User Needs and System Adaptations

FOLIO aims to meet the needs of librarians with the next-generation library management system.

The FOLIO platform was built on the principle that library management software should be flexible, modular, extensible, state-of-the-art, and cost-effective. To realise this dream, FOLIO has collaborated with numerous partners and contributors. (Watkins 2018). Additionally, it is essential to emphasise that librarians are actively involved in each phase of FOLIO development, ensuring their requirements are met and workflows are comprehensible and not overly complicated. The FOLIO project helps to consolidate professionals from different libraries and service providers to provide the best solution to libraries' needs. The product development is user-centred and employs the responses of library staff and patrons to engage in civil design and construction strategies.

Regarding these platforms, libraries understand how they operate and therefore design them in a manner that reduces the need for training and conversion costs. For instance, there is very little difficulty and enhancement in the implementation, updating, modification, and reconfigurability of the platform. This system is designed according to microservice architecture patterns, where small, autonomous services work together in perfect harmony. Microservices are designed to handle a single specific function; therefore, reliance on other microservices can be minimised. This is achieved through remote API calls, and since services consume such APIs, different technologies can be employed in each microservice to enhance speed. FOLIO products are released periodically, with three such releases per year. As a result, the content of all modules and apps is accessible, allowing libraries to assess their readiness and make a decision to either update or upgrade.

## 9. FINDINGS

FOLIO, an open-source library services platform, also redefines library industry management through concepts of partnerships, development, and change. FOLIO features an extensible architecture that 'one size does not fit all', easing the constraints on libraries when determining their systems. Such flexibility enables organisations to reorganise their library management to suit their specific demands, which in turn increases the effectiveness and satisfaction of the users. The openness of FOLIO architecture enables libraries to integrate various packages and applications, thereby increasing interoperability and reducing dependence on commercial systems. Additionally, the technology facilitates the provision of community assistance work to hone contributions towards the project's completion further. FOLIO's philosophy also considers the management aspects of any library, as well as future aspects that regulate the developmental structure of a library. In conclusion, FOLIO has become the ordinary term for the evolution of library management concepts, encompassing all hopes, intentions, and possibilities for transformation.

## 10. CONCLUSION

FOLIO is an emerging system, the recently formed Integrated Library System (ILS) platform, which relies on the willingness of the FOLIO community and librarians to contribute to its evolution. This group work policy encourages people to come up with some ideas and changes that are likely to leave the process undisturbed. According to Zhu & Spidal (2015), the progress of the last migration projects has been gauged by adherence to the strict implementation schedule, accurate data extraction, and subsequent importing with little or no load failures, supporting the task team and implementers and the work of other library staff, plus the task team that spearheads the project. This platform will serve not only as a traditional management and resource management tool but also facilitate cooperation within the industry, enabling further expansion and development. FOLIO will typically support the development of new library services – that is, new applications within libraries – and the transformation of the environment, including technology, services, and the development of associated tools. The university is, however, following Zhu and Spidal's (2015) best practices and introducing FOLIO, a free-source system, to improve its research and primary business processes.

Librarians are encouraged to contribute their knowledge on any FOLIO platforms to enhance collaboration and the sharing of ideas. Other ways to gain assistance in the FOLIO community and promote faster issue resolution are the FOLIO wiki and FOLIO Slack. There is a shift in academic libraries towards new technology and advancement in support of the library environment. It is essential to select an Integrated Library System (ILS) that is flexible, scalable, and adaptable to accommodate the constant changes in the library.

The professionals recommend the use of FOLIO primarily because of the potential for further development and modification to suit a particular library's objectives. Additionally, this sophisticated system enhances flexibility, allowing one to work from anywhere with an internet connection. Rather than the more conventional setup, which left catalogers glued to their desks in the office, FOLIO created the possibility of virtual working as long as there was internet access. The transition of the current FOLIO resembles suggestions for further improving the effectiveness of open-source library system solutions. Through a collaborative approach towards development, FOLIO is gradually transforming into a unique and high-demand ILS system.

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