

Navigating the Future of Library Systems

A Case Study of the Durban University of Technology's Review of Its Library System

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ABSTRACT

In 2024, the Durban University of Technology (DUT) Library conducted a comprehensive review of its library system to assess whether its current platform, Future of Libraries Is Open (FOLIO) hosted by EBSCO, and its discovery tool, EBSCO Discovery Service (EDS), aligned with its evolving needs. The institution had been using the current system for three years, but the slow development of important features and subsequent delays in a critical release of FOLIO led to frustrations among staff and library users, compelling the executive team to call for a comprehensive review of the library system. A major outcome of the review was to ascertain the extent of the gaps or limitations in the current system and investigate recent developments in other library systems, including discovery tools and analytical modules. After several vendor consultative sessions, extensive review of documentation and secondary sources, and engagement with selected academic libraries in South Africa, the review team concluded that there were no compelling reasons for an immediate system change and that fair consideration should be given to the developmental and community-driven ethos of FOLIO, and that issues with EDS and Panorama would be resolved by the implementation of planned features in FOLIO's roadmap. This paper highlights the key processes undertaken in the review and shares experiences and suitable practices for project planning, criteria development, and evaluation. It also argues for a regular review of the library system and stresses the value of institutional knowledge and familiarity in mitigating the risks associated with the review and acquisition of new library systems.

INTRODUCTION

New technological advancements have significantly influenced the development of library systems. Selecting a library system, either as an introduction or a replacement, is a complicated process that requires careful planning and mindful execution.¹ In 2024, the Durban University of Technology (DUT) Library conducted a comprehensive review of its library system to assess whether its current platform, Future of Libraries Is Open (FOLIO) hosted by EBSCO, and its discovery tool, EBSCO Discovery Service (EDS), aligned with its evolving needs.

Known for its early adoption of new and innovative technologies, the library was one of the first on the African continent to implement FOLIO.² The decision to use EBSCO as a FOLIO partner was supported by the preference for EDS. The combination of FOLIO, EDS, and Panorama, a business intelligence tool, would provide a superior and complete library solution.

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This case study was conducted within the context of Durban University of Technology (DUT) Library, a South African higher education library that offers access to academic resources, including books, journals, electronic databases, and other scholarly materials. Libraries generally oversee both print and digital and electronic resources, supporting research, learning, and teaching activities.³ The choice of a library system⁴ plays a fundamental role in how libraries manage their collections, facilitate user access, and integrate with broader institutional and external services.⁵ As Yeh and Walter explain, choosing an appropriate library system is important as it manages the complete range of an academic library's operations, from acquiring and processing resources to providing access for user communities and ensuring their preservation for future use.⁶ As the landscape of library systems evolves, with many libraries now transitioning to cloud-based solutions, academic libraries must periodically review their systems to ensure they meet both current and future needs.

Due to its scale and complexity, a library system migration project often leads to challenges. These include delays in meeting projected timelines, technical issues such as software compatibility, networking constraints, and data errors, as well as logistical difficulties related to large data volumes, insufficient staff training, limited human resources, and budgetary constraints.⁷ The absence of structured change management processes often exacerbates the impact on staff and hinders the successful integration and interoperability of new systems, factors that are critical to the overall success of any migration project.⁸ Additionally, implementing a new system often entails considerable financial expenses and personnel commitments for an academic library.

By 2019, DUT Library had been using SirsiDynix's Symphony integrated library system (ILS) for 18 years and had relied on the Summon discovery tool from Ex Libris for just over a decade. Symphony is used by both academic and public libraries for management of bibliographic records, circulation, and acquisitions processes. This previous system, Symphony, presented several challenges within specific modules. A notable issue was the complexity involved in generating basic reports, coupled with the failure of the serials module to align with established library standards.⁹ While the system was configurable, there were limitations in customization to meet specific institutional needs. Examples were the custom workflows and complex analytical reports. The generation of basic system reports also proved laborious and challenging for library staff. The reporting features were not user-friendly or as flexible as the institution needed, and this made it a challenge to extract and analyze data on library usage, resource management, or user behavior. The development of cloud-based, software-as-a-service models, modern enhancements in leading library systems, and the merger of established library systems provided the catalyst for the institution's executive team to initiate an exploratory investigation into newer and emerging library systems, with the aim of migrating to a new system.

DUT Library is known for its early adoption of new and innovative technologies and was among the first on the African continent to implement Future of Libraries Is Open (FOLIO), a characteristic that shaped its review of the ILS landscape and system selection.¹⁰ A culture of innovation and continuous development drives the regular reviews of its systems and processes to improve efficiencies, enhance the user experience, and respond to changing needs of teaching, learning, and research projects. While the institution primarily services undergraduate students, in recent years, there has been significant growth in both postgraduate enrollments and research output. These research focus shifts, together with increased calls for accountability, sustainability, and the demonstration of library impact on teaching, learning, and research outcomes, are driving changes in how libraries operate and demonstrate their value. Based on these institutional demands, the library system of the future would need to easily and expertly handle conventional

library functions such as acquisitions, cataloguing, and reporting; allow for high levels of customization and user personalization; be sustainable in the long term; and offer sophisticated reporting and analytical capabilities.

The review culminated in the decision to migrate to FOLIO, a library services platform hosted by EBSCO, with local support provided by Universal Knowledge Systems (UKS). FOLIO is an advanced open-source library services platform built for modern libraries. It provides flexibility, modular design, and a collaborative framework, redefining library management through efficient digital resource handling, streamlined workflows, and improved user experience.¹¹ With its advanced architecture, dedicated applications, and strong community backing, FOLIO offers a transformative solution for libraries, ensuring effective resource management and enhanced user satisfaction.¹² The decision to move to the EBSCO-hosted solution of FOLIO rather than self-hosting or choosing an alternative hosting partner was boosted by the institution's preference for EBSCO Discovery Service (EDS) and EBSCO's business intelligence tool, Panorama. EDS is an integrated search platform designed to provide seamless access to a library's entire collection, including both print and electronic resources. It indexes metadata from a wide and diverse range of sources, which include the library catalogues, academic databases, institutional repositories, and open-access content. EDS allows users to perform comprehensive, Google-like searches across multiple content types from a single interface. In academic settings, EDS supports efficient information retrieval, facilitating interdisciplinary research and improving the visibility of library holdings.¹³ Panorama is a library analytics and assessment platform developed by EBSCO that consolidates data from multiple library and campus systems to support evidence-based decision-making. It draws data from sources such as ILSs, learning management systems (LMSs), discovery services, and usage statistics to provide visual dashboards and detailed reports. Panorama is used to assess resource performance, demonstrate impact, and align library services with institutional priorities. Its ability to provide actionable insights makes it a strategic tool for planning, budgeting, and user engagement.¹⁴ Together, FOLIO, EDS, and Panorama provided an integrated functional and strategic management tool that would leverage data from multiple, disparate sources into a single analytical platform.

There was consensus among the library's executive team and technical teams that FOLIO would eventually become the leading library system across the sector, primarily due to the flexible and integrated approach of the platform. Additionally, FOLIO allows for the integration of any discovery tool or additional functionality through its application programming interface (API). However, to the detriment of FOLIO, its community-driven developmental nature and production delays led to frustrations among staff, as critical features were absent or underdeveloped. Additionally, some of the issues identified in FOLIO resulted in related issues in EDS, which led to disruptions in data integration and a consequent problematic user experience. These challenges highlighted the need for improved system interoperability and more effective communication between platforms. Based on these challenges, a comprehensive review of library systems was initiated by the executive library management team to assess FOLIO's viability against alternative systems. This paper outlines the task team's planning, criteria development, and evaluation processes. It also provides broader reflections on the challenges of library system migration in academic libraries.

METHODOLOGY

Reviewing a library system involves a systematic evaluation process designed to ensure that the system aligns with the institution's strategic goals and effectively addresses its needs. This methodology encompasses a comprehensive approach to assessing system capabilities, user requirements, cost implications, vendor support, future scalability, and sustainability.

The review process consisted of five key steps, highlighted in Figure 1. The first step in the review process was the formation of an expert team from all functional areas. The second step in the process was the development of a set of criteria that would be used to evaluate the different systems. The third step involved the shortlisting of library systems based on the team's knowledge and expertise and desktop research. The fourth step focused on gathering critical information from vendors, followed by the final step of consolidation of the information and finalization of the review report.

Figure 1. Five-step review process.



Step 1: Expertise: Selection of the Task/Project Team

A specialized task team was convened to conduct a detailed review of available library systems. The team included representatives from cataloguing/metadata, acquisitions, information services, circulation, and library information technology, ensuring a comprehensive and multidisciplinary evaluation.

The inclusion of representatives from all functional areas allowed the team to assess system requirements holistically, resulting in the development of a robust and comprehensive set of evaluation criteria. These criteria would serve as the rubric for reviewing each shortlisted system to determine its suitability.

The selection of evaluation criteria is inherently influenced by the established knowledge of the current system's operational capabilities and its known limitations. Inevitably, the criteria would lean heavily on the team's knowledge of the existing system's capabilities and its perceived shortcomings. The team discussed and contextualized needs within each member's area of expertise when developing the system evaluation criteria. As a result, the criteria are not as comprehensive as they could be and do not cover several important areas that fell outside the scope of the review or the team's evaluative capacity at the time. These include interlibrary loan management, digital asset management, integration with artificial intelligence (AI) tools, front-end

accessibility and multilingual support, and support for automated acquisitions using Electronic Data Interchange, either because these functionalities were not available in the existing system or were not actively in use.

Step 2: Measures: Criteria Development and Evaluation

According to Muhamad and Darwesh, as well as Wilson, evaluating the effectiveness of any library operation or service requires an assessment of the alignment of the system with its intended objectives.¹⁵ The task team’s first objective was to establish the criteria that would guide the evaluation of the library systems. The criteria were informed by the library’s existing challenges with FOLIO, as well as the desired features in a new library system.

Two basic documents were developed to guide the evaluation process: a list of technical requirements based on the library’s operational needs and existing system shortfalls, and a comprehensive checklist of features that would be expected from a modern library system.¹⁶ This included support for API integration, customization, and mobile capabilities.

Throughout the review, additional criteria were explored and incorporated into the rubric, which was also used to formulate follow-up questions to vendors. The final evaluation matrix was designed to assess critical features, including interoperability, discovery services, cataloguing functionalities, and user interface design.

Challenges Experienced with FOLIO

At the time of the FOLIO and EDS implementation in 2021, a number of gaps and limitations in functionality existed. These are summarized in Table 1. Resolutions to these were expected in the upcoming FOLIO releases. Unfortunately, there were delays in the FOLIO Poppy release, partly due to unforeseen vendor limitations, as well as challenges in aligning local needs with the priorities of the global FOLIO community. FOLIO, being an open-source library management system, involves a wide range of stakeholders with different priorities and requirements. The global FOLIO community consists of institutions and organizations from all over the world, each with its own specific needs, standards, and workflows, and the focus is often on more universal features or functionalities that will benefit a larger number of institutions.¹⁷

Table 1 summarizes the major challenges experienced by an academic library across multiple functional areas of the FOLIO library management system. The challenges are grouped by operational categories: hosting and software, cataloguing, acquisitions, circulation, reports, and integration. Key issues include limited testing support, lack of inventory and reporting modules, difficulties with bibliographic records and order generation, absence of fund alerts and claims reporting, restricted circulation features such as offline access and overdue notifications, and delayed placement of holds. Additional challenges involve the lack of integration with external platforms such as the Library Data Platform and EBSCO mobile, which affects reporting and mobile circulation functionality.

Table 1. Challenges experienced by the Durban University of Technology Library.

Description	Challenges
Hosting and software	Testing and support: The Future of Libraries Is Open (FOLIO) test environment operates independently, with infrequent data replication from the live server.
Cataloguing	Stock control: FOLIO does not include a dedicated inventory module.
	Bibliographic records: The system lacks the capability to import machine-readable cataloging (MARC) data in a manner that effectively matches existing records while preventing duplication.

Description	Challenges
Acquisitions	Order generation: There is currently no provision for end-users to place orders through direct submission within the system.
	Fund management: No alerts are displayed when funds are unavailable or when remaining balances are insufficient.
	Claims management: FOLIO lacks the functionality to generate claims reports.
Circulation	Offline mode: FOLIO does not offer offline mode functionality for circulation when the network is unavailable.
	Online Public Access Catalogue (OPAC): FOLIO does not include an integrated OPAC.
	Placement of holds and renewals: The placement of holds and renewals is delayed on mobile and self-check stations due to delays in the deployment of SIP2.
	Bulk user overdue notices: FOLIO does not have a system for generating quarterly bulk notifications to alert users that they have overdue items.
	Flexible calendar system: It was not possible to lend items for the weekend, with a due date on a Monday when the loan occurred on a Friday.
	Exporting of user and bibliographic data: There were unresolved issues with historical user loan data.
Reports	Basic reports: FOLIO does not have a dedicated reporting module; instead, transactional reports are accessible through application programming interfaces. Library Data Platform (LDP): There is no access to the LDP through the EBSCO FOLIO instance.
Integration	EBSCO mobile: FOLIO did not integrate with EBSCO mobile for basic circulation functionalities.

The following section elaborates on some of the key challenges experienced by DUT Library.

Acquisitions

The third-party vendor systems (for ordering materials) on FOLIO were not seamless. This caused delays with automated order processing, data syncing, and communication between the library's acquisitions module and external vendors. The acquisitions electronic resource management is cumbersome and complex to track licenses, access rights, and renewals within the system. While FOLIO provides budgeting features, the acquisitions librarians struggled with the complexity of the financial tracking. Monitoring expenditures, tracking encumbrances, and ensuring compliance with budget constraints seemed more challenging compared to the SirsiDynix system.

Acquisitions staff experienced issues with invoice matching and payment processing on FOLIO. The system did not always efficiently link purchase orders, invoices, and payments, which created discrepancies and required manual intervention to resolve. The acquisitions staff were unable to seamlessly transmit orders to vendors.

Record Creation

The cataloguer's workflow typically begins by importing records from the OCLC WorldCat Database. The challenge with FOLIO is that there is no match for duplicate records when importing records from OCLC. Once the record is correctly imported, the cataloguers work on the record to meet the library's specific needs and make the record accessible on the discovery layer. Original cataloguing is created on OCLC and imported to FOLIO. FOLIO supports machine-readable cataloguing (MARC), ensuring that the library can import, edit, and manage the bibliographic records in standard formats. FOLIO does not provide features for record validation, and thus, the

authorities are validated on OCLC before importing to FOLIO. The holdings level location is difficult to navigate on FOLIO.

Circulation

FOLIO facilitates the check-in (return) and check-out (issue) process, allowing the library staff to manage item circulation. Users can borrow and return physical materials, and FOLIO keeps track of the item availability, due dates, and user information. Circulation rules enable these processes to accommodate library sites, material types, and user profiles, among other attributes. For example, a site library may allow postgraduate students to borrow specific items over weekends, while the other sites may reserve that benefit for staff only. However, the system did not provide sufficient flexibility to address a particular edge case.

Step 3: Assessment: Shortlisted Library Systems

Using the task team's experience and knowledge of library systems, desktop research, and consultations with library system professionals from academic libraries in South Africa, five library systems were shortlisted for the first round of evaluation:

- Alma from Clarivate
- MEDAD from Naseej and UKS
- WorldShare Management System (WMS) from OCLC and Sabinet
- FOLIO from EBSCO
- Sierra from Innovative Interfaces

Sierra from Innovative Interfaces was eliminated due to uncertainties regarding vendor consolidation that was underway at the time of the review.

Step 4: Feedback: System Demonstrations and Vendor Engagement

Four vendors were invited to engagement sessions to present their respective systems. The presentations provided the task team with insights into the operational and functional capabilities of each system (Table 2). These features and capabilities were cross-referenced with the evaluation criteria. Evaluating these factors alongside core functionality ensured that the system addressed current needs and supported the long-term growth and evolution of the library's services (Appendix).

Table 2. Comparison of the library systems based on key features.

Library System and Vendor	Strengths	Limitations
Alma (Clarivate)	<ul style="list-style-type: none"> • A cloud-based system offering seamless integration of print, electronic, and digital resources. • Advanced analytics and reporting capabilities. • Robust support for consortia and multi-campus institutions. • Continuous updates with automated workflows for acquisitions, cataloguing, resource sharing, and fulfillment (circulation). • Strong global user community. 	<ul style="list-style-type: none"> • Higher cost compared to other systems. • Migration and training can be complex due to the system's comprehensiveness.
MEDAD (Naseej and UKS)	<ul style="list-style-type: none"> • A unified platform for integrating acquisitions, cataloguing, and circulation. • Tailored predominantly for Middle Eastern institutions, with support for the Arabic language and script. • Emphasis on cultural and regional library needs. • Flexible and cost-effective for smaller to mid-sized libraries. • Provides access to Naseej's custom-developed enhancements that are not yet available in FOLIO, on which MEDAD is based. 	<ul style="list-style-type: none"> • Limited global adoption; smaller user community. • May lack the advanced modularity and scalability found in larger library systems. • Fewer integrations with third-party library tools compared to competitors.
WorldShare Management System (OCLC and Sabinet)	<ul style="list-style-type: none"> • A unified platform integrating acquisitions, cataloguing, and circulation, with access to OCLC's vast WorldCat database. • Strong focus on interoperability with discovery tools and global cataloguing standards. • Streamlined workflows that reduce redundancy and improve staff efficiency. • Cost-effective for smaller academic institutions. 	<ul style="list-style-type: none"> • Limited customization compared to open-source solutions. • Dependent on OCLC's ecosystem, which might not align with all institutional goals. • Reporting tools are less advanced. • Limited application programming interface (API).

Library System and Vendor	Strengths	Limitations
FOLIO (EBSCO)	<ul style="list-style-type: none"> • An open-source Library Services Platform offering modular architecture and flexibility. • Has a strong emphasis on interoperability with existing EBSCO tools like EBSCO Discovery Service. • Collaborative development model with ongoing community input and innovation. • Lower cost for libraries with in-house IT expertise. • Support for granular functionality through modular applications. • Part of a strong global user community. • Continuously upgrading software to suit academic libraries’ unique needs. • Based on open standards and offering a comprehensive API. 	<ul style="list-style-type: none"> • Requires robust institutional support for self-hosting or reliance on EBSCO for hosting and support. • Still evolving compared to more mature systems that are currently available.

Step 5: Decision-Making: Consolidation and Reporting

For the second round of evaluation, the task team ranked the library systems based on their ability to meet the library’s four core requirements:

- Functionality, extensibility, and flexibility.
- Support: Local vendor support was crucial for long-term sustainability.
- Implementation: Complexity and ease of migration.
- Integration: API capabilities for integration with library, learning management, and other university systems.

Based on these criteria, FOLIO, Alma, and WMS were shortlisted. Alma and WMS scored highly on core functionality and integration; however, there were some concerns regarding implementation timelines and limitations of their data analytics and reporting modules compared to the FOLIO EDS Panorama package (Appendix, Section 8: 8.4). A critical component of the team’s discussion was the recent updates that had been implemented by EBSCO. These updates resolved some of the issues that had been identified as either absent or underdeveloped at the start of the review process.

FINAL CONSIDERATIONS

When selecting a library system, it is important to consider other contextual factors such as budget limitations, library complexity, customization needs, local support, and language requirements. The institution’s unique priorities, as outlined in the Appendix, along with system

integration with existing tools, and user experience informed the decision-making process. For example, in the Appendix, Sections 4 and 5 on system architecture and APIs, FOLIO more fully met requirements related to extensibility and interoperability. Requirements 4.1–4.3 and 5.1–5.3 highlight the ability to develop and integrate applications from multiple suppliers, unrestricted access to open APIs, and support for third-party development. FOLIO's open, modular architecture and unrestricted, well-documented APIs align closely with these priorities, providing greater flexibility for local development and integration than Alma or WMS, which rely more heavily on vendor-controlled extensions and predefined workflows. Similarly, around linked data (Appendix, Section 10), FOLIO provides capabilities that directly address requirements 10.1–10.7, which include transforming MARC records to the Bibliographic Framework (BIBFRAME), supporting linked data editing, and exporting bibliographic data in multiple formats. This flexibility allows the library to enrich catalogue data for web publishing and advanced interoperability, features that are more limited or controlled in Alma or WMS, which offer more vendor-driven approaches to linked data.

For this review, there were no budgetary limitations, enabling the team to focus on core issues, such as system functionality and integration with other library and university systems.

FOLIO's modular architecture allows libraries to implement only the modules they need, avoiding unnecessary complexity and cost. The open ecosystem of FOLIO facilitates integration with emerging technologies and tools, enabling libraries to remain at the forefront of innovation. As FOLIO has no licensing fees, it eliminates traditional licensing costs associated with proprietary systems like Alma and WMS, making it more budget friendly. The library can choose between self-hosting or using EBSCO's hosting service, offering cost management flexibility. FOLIO's development is driven by a global community of librarians and developers, ensuring that updates and features reflect actual library needs. The open-source development methodology provides full transparency in updates, bug fixes, and feature roadmaps.

The 24/7 online technical support provided by EBSCO, with the added benefit of a local technical team, ensures swift resolution of system issues, minimizing downtime and disruptions to library services, while the ongoing training for staff with each new upgrade further enhances the system's usability. Further, the active FOLIO community offers shared solutions, reducing dependency on vendor support. FOLIO supports integration with a wide range of third-party tools, including discovery services such as EDS and institutional repositories, via APIs, independently, or with the support of the vendor. The platform's flexibility ensures it can adapt to evolving library practices and technologies, such as BIBFRAME and linked data, AI-driven analytics, and evolving cataloguing standards.

CONCLUSION

The initial investigation included an integrated library system, a discovery tool, and an advanced analytics module. The final recommendation to keep EDS as the preferred tool was taken independently of the choice of the library system, despite the initial challenges with the integration issues with FOLIO and EDS. The decision to retain FOLIO as the preferred choice for the library was due to its open-source flexibility, cost-effectiveness, and adaptability to the library's needs. Furthermore, the task team believed that the known issues with FOLIO could be addressed through continued collaboration with its vendor, while migration to another system posed significant risks due to the unknowns inherent in any new system. With EBSCO support, FOLIO bridges the gap between open-source innovation and professional technical reliability,

making it a transformative and future-proof solution for the library as a modern and innovative library system.

This case study emphasizes the significance of conducting regular evaluations of library systems in use by academic libraries. Establishing a well-defined list of evaluation criteria ensures that library systems can be reviewed systematically and allows institutions to respond to evolving technological and user needs. It highlights the necessity for flexibility and adaptability in selecting these systems. Additionally, it demonstrates that familiarity with a particular system, along with continuous and competent support from its vendor, can provide greater long-term stability compared to making frequent migrations to new systems.

APPENDIX: COMPREHENSIVE SET OF REQUIREMENTS

Section 1: General Requirements

Number	Criteria
1.1	A test environment with regular refreshes of data from the live environment.
1.2	A robust feature roadmap that details the domains, operations, or business functions supported in the library system that are either available or in development.
1.3	The vendor provides and communicates major feature enhancements, upgrades, and updates.
1.4	The hosting services provider will test and implement new releases of the library system software for the library.
1.5	Developed with community collaboration to allow and facilitate more input than a traditional library management system's user groups and annual enhancement lists.

Section 2: Implementation and Support

Number	Criteria
2.1	Project management, including workflow analysis to optimize the new solution.
2.2	Data migration from the current library system.
2.3	Customized training, including asynchronous learning modules.
2.4	Hosting services, with Service Level Agreement (SLA) providing excellent system availability.
2.5	Ongoing product support.
2.6	Customization of user interface.
2.7	Integration with an existing or new discovery solution.
2.8	Integration with campus services, including student information systems, accounting, and identity management systems.
2.9	Typical lead time and implementation duration required for migration, and duration from placement of order to going live.

Section 3: Hosting

Number	Criteria
3.1	Robust, secure, and stable hosting and support infrastructure, with high availability and data security.
3.2	SLA that warrants system availability.
3.3	Monitoring production performance, latency, and stability.
3.4	Incident management.
3.5	Security patch management, vulnerability management.
3.6	Data retention and privacy concerns; for example, POPI Act compliance.
3.7	Version upgrades.
3.8	ISO 27001 compliance.

Section 4: System Architecture

Number	Criteria
4.1	Supports the ability to develop and integrate applications from multiple suppliers.
4.2	Supports the ability for the library and/or third-party developers to add new or enhanced functionality to existing components, modules, applications, or domains (e.g., circulation, acquisitions).
4.3	Supports the ability for the library to update or enhance the system either independently or by working with a third-party developer of the library's choosing.

Section 5: System Application Programming Interfaces (APIs)

Number	Criteria
5.1	The library system's modules must be interoperable and include open, documented APIs to support external functions.
5.2	APIs should be available for use by the library without any restrictions.
5.3	APIs should be open to multiple service providers of the library's choosing.
5.4	APIs should support the automated harvesting of cataloguing content and support the library's preferred discovery service with no restrictions or limitations.
5.5	APIs should support patron-initiated (or self-service) capabilities in third-party systems, including the discovery service of the library's choice. Patron functionality must include and is not limited to the following: <ul style="list-style-type: none"> • Personal account view and management of items borrowed and/or requested • Ability to place/create and cancel holds • Ability to view the authenticated patron's fines and fees • Ability to renew currently borrowed item(s)

Section 6: Authentication

Number	Criteria
6.1	The library system must accept logins from any SAML-compliant, single sign-on system/identity provider, such as Active Directory – ADFS.

Section 7: Discovery

Number	Criteria
7.1	The discovery service must support the integrated searching of content from full-text databases, citation databases, and the library's local content collections, including repositories.
7.2	The discovery search results lists must provide readily available PDFs.
7.3	An intuitive, multi-tiered search interface with both basic and advanced searching capabilities should be provided in the discovery solution.
7.4	Limiters and expanders that allow users to narrow search results should be provided.
7.5	Key resource information displays for availability, location, and custom messages should be provided.
7.6	User-focused features such as print, email, save, export, and citation format options must be provided along with the ability to create patron-specific folders for saving, sharing, and note-taking across sessions.
7.7	The discovery solution should also be supported by an OpenURL Link resolver, holdings management, and publication finder solution.
7.8	The linking solution should also assist with organizing and providing links to all library e-resources, such as e-journals, e-books, titles in full-text databases, and e-journal packages.
7.9	Support for local languages (translation).
7.10	The Online Public Access Catalogue (OPAC) must be optimized to search the library's local catalogue.
7.11	Updates to the staff-end of the solution are reflected in real-time in the patron-end view.
7.12	The OPAC must support direct, automatic extraction from the library system, eliminating the need for manual updates by staff.
7.13	Relevant results should be provided when refining a search.
7.14	Reference manager export should include all details of items and support multiple reference tools.
7.15	The discovery interface should be as user-friendly as Google's.
7.16	Relevancy ranking should rank an exact title match higher.
7.17	Results should incorporate articles from all subscribed databases.

Section 8: Management of Usage Data and e-Resource Statistics

Number	Criteria
8.1	The library system should provide a streamlined method through which usage data and e-resource statistics can easily be managed.
8.2	This includes statistics for all subscriptions, regardless of vendor.
8.3	The library system should allow the library to gather, store, and easily report on e-resource usage data.
8.4	Reports provide usage per month and cost per use analysis for titles, packages, and titles within a specific package.
8.5	Standardized Usage Statistics Harvesting Initiative protocols must be supported.

Section 9: OPAC

Number	Criteria
9.1	The OPAC must be optimized to search the library's local catalogue.
9.2	Updates to the staff-end of the solution are reflected in real-time in the patron-end view.
9.3	The OPAC must support direct, automatic extraction from the library system, eliminating the need for manual updates by staff.

Section 10: Linked Data

Number	Criteria
10.1	The library collection can be transformed from MARC to BIBFRAME.
10.2	The catalogue data can be enriched and published to the library and web search sites.
10.3	The library system can be extended beyond standard ILS capabilities, including the support of graph-based linked data functionality.
10.4	The library system provides or allows integration of tools to provide linked data editing functionality, where library staff users can create and manage BIBFRAME resources and relationships.
10.5	The library system provides automated authority management that syncs authorities with bibliographic MARC records.
10.6	The library system supports MARC and UNIMARC to BIBFRAME data transformations, including the ability to export to a range of linked data formats.
10.7	The library system provides a BIBFRAME graph data export to non-MARC serializations (including CSV, XML-based schema, JSON, RDF, turtle, and n-triples).
10.8	The service includes a linked data editor tool that can accommodate a variety of different controlled vocabularies and services.

Section 11: User Interface

Number	Criteria
11.1	The library system must feature a modern user interface that provides an easy and intuitive way to understand the workflows, the presentation of information, and navigation within the system.
11.2	It must be possible to navigate seamlessly between the library system's multiple modules.
11.3	A single list or column of search results with summary information available should be provided before expanding into additional detail for a selected single record or data artifact.
11.4	The library staff user must be able to utilize keyboard shortcuts, access help menus easily and consistently, and take advantage of all available accessibility features.
11.5	Employ robust search, indexing, and retrieval capabilities as are available within search engines such as (but not limited to) Elasticsearch or Amazon's OpenSearch.
11.6	The user interface must easily support localization and internationalization requirements and support responsive design, so the library system may be used on a tablet, laptop, or desktop.
11.7	The user interface must support responsive design.

Section 12: Costs and Pricing

Number	Criteria
12.1	All costs should be included in the single annual subscription.
12.2	API integrations to other library university systems should be included.

Section 13: Domains and Applications

Number	Criteria
13.1	The system must include the functionality and capability domains that support the library's operations such as circulation, acquisitions, cataloguing, electronic resource management and users.
13.2	Each domain must be comprised of multiple, smaller modules (e.g., a check-in or checkout module within the circulation domain).

Section 14: Acquisitions

Number	Criteria
14.1	Support for user-submitted orders.
14.2	It should be possible to send an order via email directly to a supplier after an order is placed.
14.3	Prompts for searches should be provided.
14.4	Fund alerts after placement of orders.
14.5	Fund override when there are insufficient funds.
14.6	Provision for monthly and quarterly claims.
14.7	Acquisitions work must support the fundamental tasks of procuring content in all formats for use by library patrons, including vendor identification, purchasing, receiving, and budget management.
14.8	Automated processes, including integrations with content vendors and campus financial systems, must work seamlessly and efficiently.
14.9	The system must include individual applications within the acquisitions domain to manage vendors, budgets, orders, and invoicing.

Section 15: Cataloguing/Inventory

Number	Criteria
15.1	There should be a single import function to identify matches and duplicate items on the system via ISBN and OCLC number.
15.2	For authority control, the system should validate personal names and subject headings with a link to Library of Congress.
15.3	Browsing personal names and subjects should yield relevant matches.
15.4	MARC tag should link to the Resource Description and Access (RDA) toolkit and MARC 21 toolkit.
15.5	Error alerts should appear when incorrect subfields are input.
15.6	Items received on serials/periodicals should be immediately apparent on the inventory instance/bibliographic record.
15.7	Transactional statistics such as withdrawn items and missing items should be readily accessible
15.8	The library system should have an integrated stocktake functionality, including scanning of on-shelf items and generation of reports.
15.9	A pop-up list of previous searches in the inventory search field should be available.
15.10	The library system must support descriptive metadata from a variety of sources, which must be presented in a uniform, abstract form for the management of the collection, regardless of the format or content rules used to describe a resource.
15.11	Support must be available for emerging data formats, such as BIBFRAME.

Number	Criteria
15.12	The library system must support essential bibliographic management functions, including creation, editing, suppression, deletion, import, export, replacement, overlay, bulk edit capabilities, and reporting.
15.13	The metadata management schema must be able to support multiple formats of content (e.g., MARC 21) in a data-agnostic layer.

Section 16: Circulation

Number	Criteria
16.1	An offline mode should be provided to allow for circulation activities to continue during power or network outages.
16.2	Transactional statistics, such as overdue items, should be easily generated by staff.
16.3	Flexibility of circulation rules to address unique borrowing needs.
16.4	The library system must support the checking out and discharging of library materials.
16.5	The library system must support different patron types and groups, loan types, item types, fines and fee structures, recalls, holds, and user/patron notifications, as well as reporting functions.
16.6	A booking module should be provided for the reservation of laptops or group rooms.

Section 17: Discovery

Number	Criteria
17.1	Relevant results should be provided when refining a search.
17.2	Reference manager export should include all details of items and support multiple reference tools.
17.3	The discovery interface should be as user-friendly as Google's.
17.4	Relevancy ranking should rank an exact title match higher.
17.5	Results should incorporate articles from all subscribed databases.

Section 18: E-Resources Management

Number	Criteria
18.1	The library system must support the management of electronic resources, as well as print and physical collections.
18.2	The library system must allow for the management of agreements, licenses, and the integration of multiple knowledge bases.

Section 19: Reporting/Analytics

Number	Criteria
19.1	Hosting services for the proposed library system must include a modern analytics solution.
19.2	The reporting solution must incorporate the essential functions of the library system, for both physical and electronic resources, in addition to modules including circulation, acquisitions, budget, and finance (including encumbrances), data import, data export, and bulk edit.
19.3	Reporting should be a real-time solution built on modern components, including data visualization, which allows the library to view reports in multiple graphical displays.
19.4	A user-friendly query builder should be provided.
19.5	The service should provide the ability to remove selected records from results lists, add records to results, or deduplicate result lists.
19.6	The reporting service should provide the ability to make a list private, share it, or limit edit permissions.

Number	Criteria
19.7	The reporting service must provide a query that is re-runnable by staff in order to efficiently improve reporting workflows.
19.8	The reporting service should be able to search across modules and record types.
19.9	It should be possible to integrate external sources of data, such as gate count or laptop usage.
19.10	It should be possible to integrate external business intelligence tools.

Section 20: User Management

Number	Criteria
20.1	The library system must include a separate user management application to manage staff, faculty, and students.
20.2	Library staff should have the ability to create, edit, manage, and delete user records.
20.3	The library system must provide permission-based staff user accounts to limit both access to—and editing rights of—library user and patron accounts.
20.4	The library system must have the capability to load, update, and overlay user records from the campus student information system.
20.5	The library system must not make any distinctions between the different types of users other than the rights they are given in the system.
20.6	The library system must provide flexible ways in which user rights are managed in the system.
20.7	The library system must support single sign-on.
20.8	The library system should allow existing campus login accounts to be used within the discovery service and the library services platform.

ENDNOTES

- ¹ R. Raju et al., "The Migration of Integrated Library Systems with Special Reference to the Rollout of Unicorn in the Province of KZN," *South African Journal of Libraries and Information Science* 73, no. 2 (2007): 168–79, <https://doi.org/10.7553/73-2-1350>.
- ² "Durban University of Technology Becomes First University in South Africa to Adopt the FOLIO Library Services Platform," EBSCO, accessed April 2, 2025, <https://about.ebsco.com/news-center/press-releases/durban-university-technology-first-south-africa-university-to-adopt-folio>.
- ³ A. Moonasar, "Assessing the Alignment of a University of Technology Library Infrastructure with the Fourth Industrial Revolution: Implications for Librarian Roles," *Library Management* 8, no. 1 (2024): 1–15, <https://doi.org/10.1108/LM-06-2024-0069>.
- ⁴ We use the term *library system* as an umbrella term that includes any system used to manage library operations. It includes traditional integrated library systems, library management systems, and library services platforms. Marshall Breeding provides a comprehensive definition of library services platforms in relation to traditional integrated library systems (2020, 3).
- ⁵ W. J. Al-Kubaisy and B. Al-Khateeb, "The Selection of Best Open Source Integrated Library Management Software: A Review," *Iraqi Journal of Science* 65, no. 7 (2024): 3993–4007, <https://doi.org/10.24996/ijis.2024.65.7.36>.
- ⁶ S. T. Yeh and Z. Walter, "Critical Success Factors for Integrated Library System Implementation in Academic Libraries: A Qualitative Study," *Information Technology and Libraries* 35, no.3 (2016): 27–42, <https://doi.org/10.6017/ital.v35i2.9255>.
- ⁷ Yeh and Walter, "Critical Success Factors"; A. M. Diyaolu and O. O. Oso, "Challenges of Integrated Library System (ILS) Migration in Selected Academic Libraries in Oyo State, Nigeria," *Library Philosophy and Practice* (2019), <https://digitalcommons.unl.edu/libphilprac/2535>; Z. Liu and B. Shao, "A Systematic Review of Library Services Platforms Research and Research Agenda," *Library & Information Science Research* 46, no. 4 (2024): 1–9, <https://doi.org/10.1016/j.lisr.2024.101325>.
- ⁸ Janeth Koskei, "Analysis of Change Management Facilitation for Library System Migration in Academic Libraries in Kenya: A Case of Moi University, Eldoret. Eastern African," *Journal of Humanities and Social Sciences* 3, no. 1 (2024): 161–70, <https://doi.org/10.58721/eajhss.v3i1.644>.
- ⁹ Anushie Moonasar, "A Leap into the Future—Migrating to FOLIO—A Cataloguer's Perspective," *South African Journal of Libraries and Information Science* 88, no. 1 (2022): 1–9, <https://doi.org/10.7553/88-1-2123>.
- ¹⁰ "Durban University of Technology."
- ¹¹ "The Open Library Foundation," FOLIO (2022), accessed April 2, 2025, <https://www.folio.org>.
- ¹² S. Panda and N. Kaur, "Leading the Library Revolution with FOLIO: A Cutting-Edge Open Source Library Service Platform," in *Handbook of Research on Innovative Approaches to Information Technology in Library and Information Science* (IGI Global, 2024), 148–82.
- ¹³ "EBSCO Discovery Service," EBSCO, accessed August 26, 2025, <https://about.ebsco.com/academic-libraries/products/ebsco-discovery-service>.
- ¹⁴ "Panorama—Insights for Library Analytics," EBSCO, accessed August 26, 2025, <https://about.ebsco.com/products/panorama>.
- ¹⁵ S. S. Muhamad and A. M. Darwesh, "Smart University Library Management System Based on Internet of Things," *UHD Journal of Science and Technology* 4, no. 2 (2020): 63–74, <https://doi.org/10.21928/uhdjest.v4n2y2020.pp63-74>; T. Wilson, "Evaluation Strategies for Library/Information Systems," accessed November 30, 2024, <https://www.informationr.net/tdw/publ/papers/evaluation85.html>.
- ¹⁶ The documents have been consolidated into a single comprehensive document and included in the Appendix.
- ¹⁷ "The Open Library Foundation."