



Introduction To Library Management Software And Its Migration In Academic Libraries

Mrs. Pratibha S. Kamble

Research Student

Corresponding Author – Mrs. Pratibha S. Kamble

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Abstract:

Data migration is the process of transferring data between different storage types, formats, or computer systems. It is a critical task often required when organizations, particularly academic libraries, upgrade to new software systems. With the rise of the internet and open-source software, the need for migration has become more pressing. This strategic move aims to not only make system management more cost-effective and efficient but, most importantly, to enhance library services for users.

When planning for a new system, a key consideration is whether existing data can be migrated with minimal errors. Data migration is a highly complex and challenging aspect of the conversion process, and any mistakes can be profound and difficult to recover from, affecting the functionality and accuracy of the new system. This article provides an overview of the key components of an academic library software migration. It addresses the reasons for migration, identifies potential problems, outlines essential migration phases, and concludes with a summary of best practices for a successful transition. The entire process demands extensive planning, stakeholder communication, and meticulous data management to minimize disruption and ensure the new system effectively meets the library's needs.

Keywords: Library Migration, KOHA, Data Migration, MARC Format, Open Source Software, Library Automation.

Introduction:

Academic libraries are essential hubs of information and technology, constantly evolving to meet the dynamic needs of their users. At the core of their operations is the Integrated Library System (ILS), which manages key functions such as acquisitions, cataloging, circulation, and reporting. As technology advances, an existing ILS can become outdated, expensive to maintain, or simply unable to support the library's evolving services. This necessitates a strategic migration to a new system.

A transition to a modern platform is more than a technical upgrade; it is a strategic move designed to:

- **Improve Efficiency:** Streamline workflows and automate routine tasks.
- **Enhance User Experience:** Provide a more intuitive interface and better discovery tools.
- **Align with New Standards:** Adopt modern, web-based, or open-source platforms.

Today, libraries are shifting from traditional ILS to more comprehensive solutions like a Library Services Platform (LSP) or open-source software such as Koha

and FOLIO. An LSP is a next-generation, cloud-based system that integrates the management of physical, digital, and electronic resources. Similarly, open-source solutions provide libraries with flexibility, community support, and the ability to customize their system without the high costs of proprietary software. This migration allows libraries to offer advanced services, such as a single, unified search layer for all collections, which significantly improves accessibility for students and faculty.

In India, proprietary Library Management Systems are a popular tool for automating libraries, making data migration from these applications particularly challenging. Tabular bibliographic data is often exported to spreadsheet formats like CSV and XLSX, which then needs to be transformed into the industry-standard MARC 21 format. This process requires specialized software like MARC Edit to apply MARC tags. The .xlsx file is converted to a .txt (tab-delimited) file, which is then converted to .mrc format before finally being converted to a .mrc file. Crucially, data mapping is essential before this move, and the migrated data must be properly validated before being loaded into a MySQL-compatible open-source database. Projects using open-source software are fundamentally about collaboration and transparency, and many prominent Indian institutions have successfully made this transition.

Definitions:

1. **Library Management System (LMS):** Software designed to manage all the functions of a library. It helps librarians maintain a database of new books and a record of books borrowed by members, including their due dates.
2. **Library Management Software Migration:** The process of transferring data

and functionality from an existing Integrated Library System (ILS) or Library Management System (LMS) to a new or updated system. This involves moving existing catalogue records, patron information, circulation data, and other essential records into a new software platform to leverage its enhanced features and improve efficiency.

3. **Data Migration:** The process of transferring data between storage types, formats, or computer systems. It is the most critical and difficult aspect of the conversion, and extreme care must be taken to avoid unrecoverable mistakes that could affect the new system's functionality and accuracy.

Objectives:

1. To understand the process of data migration in library management software.
2. To study the tools and techniques of data migration.
3. To discuss the key steps involved in data migration.
4. To analyse the challenges of library management software migration.

Literature Review:

1. **Matoria, Ram Kumar & Upadhyay, P.K. (2005):** The authors detail their experience migrating library data from LibSys to e-Granthalaya. They outline a step-by-step approach and discuss the peculiarities of the source software. Key insights include the value of refining and cleaning data during migration, which is also useful when switching between other software platforms.
2. **Ajala, Samuel F. & Ayankola, Ibrahim A. (2012):** This article presents a survey on the challenges of software adoption in Nigerian libraries. Findings suggest that many libraries are developing in-house software to meet their specific needs. The researchers are optimistic

that these frustrations will subside, leading to a problem-free software era.

3. **Nemade, Vasha et al. (2016):** This study emphasizes the role of Library Content Management Systems as web-based platforms, enabling easy access to digital resources. These systems aid in archiving and digital preservation, provide disaster recovery, and support content management functions such as indexing, version control, and advanced retrieval.

4. **Vimal Kumar, V. & Abdul Majeed, K.C. (2019):** The researchers describe the migration from Soul to Koha at Mahatma Gandhi University. They highlight that although the process is challenging, it offers valuable learning opportunities for library professionals, especially when conducted using in-house expertise.

5. Problems during Library Management Software Migration:

Despite thorough preparation, migrations are prone to various challenges that can disrupt operations and lead to delays. The major problems that often occur include:

- **Data Loss or Corruption:** Incompatibilities between old and new systems' data structures, compounded by poor data quality in the legacy system (e.g., duplicates, incomplete records), can lead to data loss during mapping or transfer. This erodes trust and necessitates extensive post-migration cleanup.
- **Resistance to Change:** Staff and users may resist the new system due to fear of the unknown or concerns about an increased workload. Insufficient training and a lack of communication can foster this resistance, leading to low morale and underuse of the new software.
- **Limited Time and Expertise:** Effective migration requires specialized knowledge of databases, scripting, and metadata

standards, which many library employees may not possess. Juggling migration tasks with daily operations can introduce errors and oversights, sometimes leading to over-reliance on external consultants.

- **Poor ICT Infrastructure:** Underlying infrastructure weaknesses, such as slow internet, outdated servers, or insufficient storage, can hinder the process. These shortcomings can prolong data transfer times and cause extended downtime.

Migration Phases:

A typical library software migration can be broken down into several distinct phases:

Planning and Assessment: This crucial initial phase involves forming a dedicated migration team, conducting a thorough needs analysis, and setting clear objectives. The team assesses the current system's limitations and defines the scope of the migration.

- **Vendor Selection and Contract Negotiation:** Libraries evaluate potential vendors based on factors like cost, functionality, technical support, and experience. A thorough negotiation process ensures the contract aligns with the library's needs and budget.
- **Data Preparation and Cleanup:** Before any data is transferred, it must be audited, cleaned, and organized. This involves identifying and correcting errors, removing duplicates, and ensuring data integrity to prevent issues in the new system.
- **Testing and Implementation:** A parallel environment is created to test the new system with a sample of the cleaned data. This phase is critical for identifying and resolving bugs, checking data accuracy, and familiarizing staff with new workflows.

- **Training and Go-Live:** Staff receive comprehensive training on the new system. Once testing is complete and the team is confident, the system goes live, often with a "cutover" period where cataloging is halted in the old system.
- **Post-Migration Support:** After the new system is in use, ongoing support is essential for resolving any issues, performing additional data cleanup, and optimizing workflows to ensure the new system fully meets the library's needs.

Software Migration Tools:

Several tools can aid in the migration process, including:

- Cloud Endure
- Movere
- AWS Migration Hub
- GCP Migration
- Zerto
- River Meadow
- Cloud Space
- Microsoft Azure Migration
- Carbonite Migrate
- Turbonomic

Checklist for Software Migration:

The following points should be handled carefully when migrating your Library Management Software:

- Assess the current Library Management Software environment.
- Identify critical library data and applications.
- Evaluate the compatibility of the new library management software.
- Plan a library data migration strategy.
- Back up existing library data.
- Test the migration process in a sandbox environment.
- Train library staff on the new software.

- Communicate the migration plan to stakeholders.
- Set up support channels for post-migration assistance.
- Conduct phased migration to minimize disruptions.
- Monitor performance during and after migration.
- Verify data integrity post-migration.
- Document the migration process for future reference.
- Obtain feedback from users for continuous improvement.
- Ensure compliance with regulatory requirements.
- Update documentation and training materials.

Conclusion:

In this paper, I have described the intricate yet vital process of library management software migration in academic libraries. This migration is driven by the necessity to keep pace with rapid technological advancements and the evolving needs of library users. Often involving a shift from proprietary systems to open-source or cloud-based platforms, such transitions offer academic libraries significant opportunities to enhance operational efficiency, improve user experience, and align with modern resource management standards. However, the migration process is complex and demands detailed planning, thorough data cleansing, and effective communication with all stakeholders to mitigate risks such as data loss, resistance to change, and technical issues. Maintaining data integrity through meticulous validation is crucial, as errors can compromise the functionality of the new system. Furthermore, investing in comprehensive training and support for staff is essential to ensure smooth adoption and seamless

workflow integration. The collaborative nature of open-source solutions also empowers libraries with greater flexibility and community-driven innovation, enabling customization to meet specific needs. Despite the challenges, successful migration enables academic libraries to modernize their services, streamline resource discovery, and reinforce their strategic importance within their institutions. Ultimately, software migration is more than a technical upgrade—it is a strategic endeavor that transforms library services, enhances accessibility, and positions the library as a dynamic center of knowledge and innovation.

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