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Technical Know-How and Library Management Systems in Nigerian Universities: A Mixed-Methods Approach

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Abstract
This paper explores the impact of technical knowledge in library management systems for resource management in university libraries in Nigeria. Therefore, this paper aims to assess the level of technical know-how in library management systems in university libraries in Southwest Nigeria. The study relied on a descriptive mixed research design incorporating both quantitative and qualitative research methods while adopting UTAUT as its theoretical framework. The study population consisted of 372 professional librarians and system analysts working in selected universities in Southwest, Nigeria. The total enumeration method was adopted to include all the 372 professionals as respondents for the study. The study research instruments were questionnaire and interview method, while data analysis was conducted using IBM-SPSS 26.0 version for the quantitative data, while the qualitative data were presented in thematic form. Findings from the study reveals that librarians and system analysts in university libraries in Southwest Nigeria is high. This indicates that respondents are well equipped to handle day-to-day library operations, such as cataloguing, circulation, and basic system use. Therefore, the paper recommended that librarians and system analysts need continuous training and capacity building for librarians and system analysts. Regular workshops, seminars, and hands-on training should be organized by university management and relevant stakeholders to improve both basic and advanced technical skills, particularly in areas such as system configuration, integration, and troubleshooting by university management and relevant stakeholders.

Keywords: *Library management, Mixed method, Resource management, Technical know-how, University libraries.*

Introduction
In the 21st Century, resource management has become increasingly dependent on digital solutions, and university libraries are experiencing a paradigm shift from traditional processes to automated and integrated systems for managing diverse collections and services. This transformation led to the need for library management system (LMS), which can be described as a system-based solution that facilitates the efficient handling of library operations, including acquisition, cataloging, circulation, serial control, and digital resource management. The integration of LMS into university library services is not merely a technological upgrade, it is a strategic response to the growing demand for timely, accessible, and reliable

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information services in a knowledge-driven academic environment (Bagewadi et al., 2025). In this context, university libraries resource management is crucial for enhancing access to information and supporting academic pursuits. With the growing need for efficiency, accessibility, and sustainability, many libraries in Nigeria have adopted LMS.

University libraries are one of the critical support systems for higher education, providing access to vast and diverse collections of information resources that enhance teaching, learning, and research. As knowledge hubs, they are responsible for providing timely, accurate, and relevant academic resources to students, faculty, and researchers (Abimbola & Bolaji, 2024). In this regard, the LMS is essential instrument in contemporary libraries, significantly enhancing operational efficiency and resource management. They facilitate the cataloging and classification of various materials, including books, journals, and digital resources, through established systems such as the Dewey Decimal Classification (DDC) and the Library of Congress Classification (LCC), thereby simplifying item retrieval via comprehensive metadata management (Odeyemi & Musa, 2018). Efficient resource management, which encompasses acquisition, classification, circulation, tracking, and reporting, is vital to fulfilling this mandate. The integration of LMS has revolutionised the manner in which these functions are performed, enabling libraries to shift from manual, paper-based operations to digital platforms that support real-time access, automation, and remote services (Edewor et al., 2023).

Conceptually, resources management refers to the planning, acquisition, organisation, utilisation, preservation, and evaluation of library resources in ways that ensure their availability, accessibility, and relevance to users' needs (Omeluzor & Adara, 2023). In the digital age, where information is abundant and, often in different formats and platforms, strategically and sustainably managing these resources has become even more vital. In university libraries, resource management involves both tangible resources, such as books, journals, and databases and intangible assets, such as knowledge organisation systems, metadata and user services. Resource management in university libraries encompasses selection, acquisition, cataloging, organisation, preservation, and dissemination of informational materials. It plays a pivotal role in ensuring that the academic community resources are efficiently utilised, equitably distributed, and readily available to the academic community. Inadequate resource management often leads to duplication of materials, stock misplacement, outdated collections, and underutilization of valuable information assets (Okonoko & Okocha, 2022). A comprehensive LMS addresses these issues by offering real-time visibility, inventory control, and analytical capabilities that aid in decision-making and policy formulation.

Statement of the Problem

In this digital era, library resource management is increasingly dependent on the adoption and efficient use of LMS. These systems are designed to

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automate, streamline, retrieve, and enhance academic libraries resource information circulation. In Nigeria, particularly in the Southwest, universities have made commendable efforts to implement LMS such as Alexandria, Alice for windows, KOHA, Evergreen, NewGenLib, PhpMyLirbrary, E-prints, Greenstone, OpenBiblio, D-space, and ABCD to improve access to information and facilitate better resource management (Adeoye et. al. 2023).

However, despite the availability of these systems, challenges related to technical know-how, user friendliness, and ease of use continue to impede their optimal utilisation (Oduwole & Oyesiku, 2020; Adebayo & Gbaje, 2022). For example, library personnel technical know-how among library personnel is crucial for the effective deployment and use of LMS. Without adequate technical skills, librarians may struggle with system configuration, data input, data migration, troubleshooting, and maintenance tasks, which can result in underutilizations or inefficient system use (Afolabi, 2021). Several studies have indicated that many librarians and support staff in Nigerian university libraries lack the necessary ICT competencies to maximise the functionality of LMS (Ibrahim, Abdulkadir & Oyelude, 2022). This skill gap leads to operational inefficiencies in resource cataloging and circulation, and ultimately poor service delivery to users.

Therefore, the objective of the study is to determine the level of technical know-how of librarians and system analysts in the use of library management systems to manage library resource in university libraries in Southwest, Nigeria. The research question is to determine the level of technical know-how of librarians and system analysts in the use of library management systems to manage library resources in university libraries in Southwest, Nigeria.

Hypothesis

The following null hypothesis was tested at 0.05 level:
There is no significant relationship between librarian's technical know-how of librarians and resource management practice in university libraries in Southwest Nigeria.

Conceptual Review and Theoretical Framework

The Concept of Resource Management in University Libraries

Aina (2013) defined university libraries as organised collections of print and non-print materials designed to support parent institution's instructional, research, and extension activities of their parent institution. This view emphasises their role in providing access to books, journals, and other resources essential for academic excellence. Ogunleye and Ibitoye (2023) described university libraries as " centers combining physical and digital resources to foster intellectual engagement and innovation through accessible, user-focused services. This definition highlights the shift from traditional collections to integrated digital platforms. According to Eze and Nwankwo (2023), a university library is the intellectual nerve center of an

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institution where knowledge is curated, preserved, and disseminated to empower research, teaching, and lifelong learning". This definition underscores the library's foundational role in academic and research endeavours.

Ajayi and Bello (2023) defined university libraries as environments in which resources, spaces, and services converge to enhance collaborative learning, critical thinking, and academic development. This perspective focuses on their modern role in facilitating learning beyond individual study. University libraries are viewed as facilitators of information literacy and ethical use of information through programmers that empower users to retrieve, evaluate, and apply knowledge effectively (Okoro & Aluko, 2022). This definition highlights the library's role in equipping users with essential academic skills. Adeniran et al. (2023) described university libraries as custodians of institutional memory and knowledge, providing access to archived materials, research outputs, and rare manuscripts while promoting open access to global information resources.

Concept of the Library Management System

The concept of LMS refers to a set of digital tools and systems designed to automate and streamline the operations of libraries. The purpose of LMS is to manage and track library collections, facilitate the circulation of resources, assist in cataloging, and provide an efficient interface for library staff and users. Over the years, LMSs have evolved from simple cataloging systems to comprehensive solutions that support several of library services, including digital content management, user interaction, and administrative tasks. Many authors have conceptualised LMS in different ways. Muhammad and Suleiman (2025) defined library management system such as Koha and an institutional repository like DSpace are open-source, cloud-based platforms that enable university libraries to efficiently manage, preserve, and provide remote open access to digital information resources while offering flexible, cost-effective solutions for automating library services and enhancing the online visibility of institutional scholarly outputs.

Recent developments in cloud computing have developed to cloud-based library management systems. As described by Olamide et al. (2023), cloud-based library management software allows libraries to access resources, manage catalogs, and provide user services from remote locations, thereby reducing infrastructure costs and enhancing scalability and accessibility. This definition focuses on the flexibility and cost-effectiveness of cloud-based solutions. According to Osunbiyi and Adebayo (2023), library management software is a system designed to enhance user experience by providing efficient search, access, and reservation capabilities, along with features for library staff to easily manage the circulation and cataloging of resources. This definition emphasises user-friendly interface and the importance of improving user engagement. Library management software is defined as an automated tool that streamlines and simplifies various library

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operations, such as cataloging, loan management, and inventory checks, to reduce manual workload and improve resource accessibility (Ajayi & Bello, 2022). This view emphasises the efficiency of automation in daily library tasks.

Concept of Technical Know-how

The growing complexity of digital tools and platforms has further elevated the importance of technical know-how in the knowledge economy. Technical know-how often includes both, especially in operational environments like libraries where staff must troubleshoot issues and adapt to system upgrades without formal instruction manuals. In the Nigerian context, particularly within universities in the Southwest region, empirical evidence indicates that the level of ICT proficiency among library personnel significantly influences the effective utilisation of Library Management Systems (LMS). For instance, Igun (2022), using a descriptive survey design, examined the challenges confronting academic libraries in maximising LMS functionalities and identified inadequate training and limited exposure to digital tools as major constraints to optimal system use. The study further suggests that continuous professional development and ICT capacity-building initiatives are essential for equipping library personnel with the required technical know-how.

Theoretical Framework

Unified Theory of Acceptance and Use of Technology

The Unified Theory of Acceptance and Use of Technology was developed by Venkatesh et al. (2003) to provide an integrated explanation of individuals' behavioural intentions to use technology and their actual technology-use behaviour. The theory emerged from the synthesis of several earlier models of technology acceptance and identified four major constructs that determine users' acceptance and utilisation of information systems. These constructs are performance expectancy, effort expectancy, social influence and facilitating conditions. The model proposes that individuals are more likely to adopt and continue using a technology when they believe that it will improve their performance, is relatively easy to use, is supported by important people within their social and professional environment and is accompanied by adequate organisational and technical support.

Performance expectancy refers to the degree to which an individual believes that the use of a particular technology will contribute to improved job performance or the achievement of desirable work-related outcomes (Venkatesh et al., 2003). Within the context of Library Management Systems, performance expectancy reflects the extent to which librarians believe that the use of an LMS can improve the efficiency, accuracy and effectiveness of library resource management. Librarians are more likely to adopt and consistently utilise an LMS when they perceive that the system can facilitate functions such as cataloguing, circulation, acquisition, serials management, report generation and access to bibliographic information. The perceived contribution of the system to improved productivity and service

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delivery can therefore influence librarians' willingness to integrate the technology into their routine professional activities.

Effort expectancy refers to the perceived degree of ease associated with the use of a technological system. It explains the extent to which users believe that a technology can be learned and operated without excessive mental or physical effort. This construct is particularly relevant to the concept of ease of use examined in the present study because librarians are more likely to accept and use an LMS when they perceive its functions as understandable, accessible and uncomplicated. Al-Azawei et al. (2015) observed that perceived ease of use can influence users' willingness to engage with technological systems, while excessive system complexity may discourage continued utilisation. In university libraries where staff members possess different levels of digital literacy and technological experience, a system that is difficult to understand or operate may negatively affect its acceptance and effective use.

Social influence represents the extent to which an individual believes that people who are important within the social or professional environment expect them to use a particular technology. Such influence may originate from colleagues, supervisors, university management, professional associations and other relevant stakeholders. Within academic libraries, librarians may become more willing to adopt an LMS when its use is encouraged by library management, supported by colleagues or recognised as an important professional practice within the institution. Social influence is therefore capable of shaping librarians' attitudes towards new technologies, particularly during the early stages of adoption when users may depend on the experiences and opinions of others in deciding whether to accept an innovation.

Facilitating conditions refer to the extent to which individuals believe that adequate organisational and technical infrastructure exists to support the use of a technological system (Venkatesh et al., 2003). These conditions include the availability of computers, stable internet connectivity, reliable power supply, appropriate software, technical support, staff training and institutional policies that encourage technology use. Facilitating conditions are particularly important in university libraries because effective utilisation of an LMS cannot be sustained solely through users' willingness to adopt the technology without corresponding organisational and infrastructural support. In the context of universities in South-West Nigeria, differences in ICT infrastructure, technical support and access to training may significantly influence the extent to which Library Management Systems are effectively utilised. Institutional support in the form of adequate ICT facilities, regular staff training and responsive technical assistance can therefore promote sustained LMS use and improve library resource management.

The theory is particularly relevant to the present study because its major constructs correspond closely with the factors influencing librarians'

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adoption and utilisation of Library Management Systems. Effort expectancy provides a theoretical explanation for ease of use and user-friendliness because systems that are simple, intuitive and easy to navigate require less effort from users and are therefore more likely to be accepted. User-friendliness is closely related to the manner in which system interfaces, commands and functions facilitate smooth interaction between librarians and the LMS. Earlier technology acceptance literature has similarly demonstrated that systems perceived as easy to use are more likely to attract positive attitudes and sustained utilisation (Davis, 1989; Nielsen, 1993).

Performance expectancy also relates closely to librarians' technical know-how because users who possess adequate technological skills may be better positioned to recognise and utilise the performance benefits provided by an LMS. Librarians who understand the technical operations of the system are more likely to use its functions effectively and experience improvements in productivity, accuracy, information retrieval and service delivery. Technical competence may therefore strengthen librarians' confidence in the system and enhance their perception of the usefulness of LMS applications in managing library resources.

Facilitating conditions further provide a basis for explaining the role of institutional support in LMS utilisation. Effective implementation of Library Management Systems requires more than individual technological competence because the availability of adequate hardware, software, internet facilities, electricity, technical personnel and training opportunities can substantially influence the level of system use. Universities that provide appropriate infrastructure and continuous technical support are more likely to create an enabling environment in which librarians can use Library Management Systems effectively and consistently.

Although user-friendliness is not explicitly identified as an independent core construct within UTAUT, it is closely associated with effort expectancy because both concepts address the ease with which users can interact with a technology. A user-friendly LMS minimises unnecessary complexity, simplifies navigation and reduces the cognitive effort required to perform library operations. Similarly, technical know-how can interact with effort expectancy and facilitating conditions because librarians with adequate ICT skills may find the system easier to use, while institutional support can further strengthen their ability to overcome technical difficulties.

The application of UTAUT to the present study therefore provides a comprehensive basis for understanding the factors that influence librarians' adoption and effective utilisation of Library Management Systems. Performance expectancy explains the benefits librarians expect to obtain from the system, effort expectancy accounts for perceived ease of use and user-friendliness, social influence explains the effect of professional and institutional expectations, while facilitating conditions address the organisational and technological support required for effective system

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utilisation. The alignment of the study variables with these constructs provides a strong theoretical foundation for examining how technical know-how, ease of use, user-friendliness and institutional support influence the use of Library Management Systems for library resource management in universities in South-West Nigeria. UTAUT consequently offers an appropriate framework for explaining both librarians' behavioural intentions and the organisational conditions necessary for sustained and effective use of Library Management Systems

Empirical Review

Yeboah et al. (2023) examined the interoperability of library management systems with university-wide digital platforms in Ghanaian universities. The researcher adopted a qualitative research approach and reported that limited libraries in Ghana adopted integrated open-source software with proprietary tools, such as Sierra to address specific operational needs. Uzomba et. al. (2015) conducted a study on the impact of automation on library operations in Nigerian university libraries. This study adopted a descriptive survey research design. while the stratified sampling technique was adopted to select many diverse kinds of library. Open-source library software solutions are out there today that could be embraced by the library. Some of the open-source software in today's market includes Emilda, EspaBiblio, Evergreen, Gnuteca, InfoCID, Jayuya, Koha, and NewGenLib. Biblio, OPALS, OpenAmapthèque, OpenBiblio, PhpMyLibrary, PMB, and Senayan. However, the authors, pointed out that of all the open-source software available in the market, Koha and Evergreen have gained major extensions in functionality that are not present in their counterparts. Anupam and Baishakhi (2021) asserted that libraries use different software (ILS, Koha, LibSys, SOUL, and Virtua; IRs- DSpace, Eprint, and Greenstone), but users may not have the time, patience or skills to search using a number of different interfaces.

Onwubiko (2025) evaluated the use of LMS in Federal University Libraries in Nigeria. A descriptive survey design was employed, with a specific population of forty Federal University Librarians out of a total of forty-three. A census sampling technique was applied, meaning that all 40 librarians participated as respondents. Four key research questions was employed in the study and data were collected using a self-designed, four point Likert scale questionnaire titled Assessment of Library Management Software in Federal Universities in Nigeria (ALMSFUN). Descriptive statistics were used to analyded the data, which were then presented in tables and charts. The results indicate that KOHA is the most widely used LMS, implemented, by 21 universities. Additionally, LMS plays a crucial role in supporting university management by streamlining workflows in enhancing librarian's efficiency. Also, Hudron and Emmanuel (2014) investigated the library software in used in Nigerian university libraries and, the challenges and frustrations experienced in their automation projects. This study adopted a descriptive survey method and total enumeration method to include all the is 372 librarians in the 32 selected universities in

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Nigeria. This technique is used in situations where the study population is readily accessible for data collection and usually applicable in a study where the population is small and of a manageable. According to the survey, university libraries in Nigeria commonly employ library software such as KOHA, SLAM, and VIRTUA to run their operations.

Research Methodology.

This study adopted a descriptive mixed survey research design. This study population is 372 consists of professional librarians and system analysts working in selected universities in Southwest, Nigeria. Therefore, the total number of professional librarians and system analysts selected in Southwest, Nigeria is 345 and 27, respectively. Data were collected using a self-developed questionnaire. In addition to the questionnaire, a structured interview with system analyst was conducted to gather qualitative data on technical know-how. The purpose of conducting interviews is to provide deeper insights into the influence of library management systems, technical know-how on resources management. Quantitative data were analyzed using IBM-SPSS version 26.0. Data collected through interviews were transcribed and analyzed using thematic analysis according to the research questions of the study.

Table 1: Study Population Distribution

S/N / State	University Library	Librarians	System Analyst	Ownership type
LAGOS STATE				
1.	University of Lagos Library, Akoka Nigeria	25	2	F
2.	Lagos State University Library, Ojo Nigeria	21	1	S
3.	Augustine University Library, Epe, Nigeria	4	1	P
OYO STATE				
1.	Ibadan University Library, Ibadan, Nigeria	60	2	F
2.	Ladoke Akinetola University of Technology Library, Ogbomoso, Nigeria	26	1	S
3.	Ajayi Crowther University Library, OyoNigeria	11	2	P
EKITI STATE				
1.	Federal University Oye Library, Oye-Ekiti	23	2	F
2.	Ekiti State University Library, Ado-Ekit, Nigeria	19	2	S
3.	Bamidele Olumilua University of Education, Science and Technology Library, Ikere-Ekiti,	7	1	P

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	Nigeria			
OGUN STATE				
1.	Federal University of Agriculture Library, Abeokuta	19	1	F
2.	Olabisi Onabanjo University Library, Ago-Iwoye	13	2	S
3.	Bells University of Technology Library, Otta, Nigeria	4	1	P
ONDO STATE				
1.	Federal University of Technology Library, Akure, Nigeria	28	2	F
2.	Ondo State University of Medical Sciences Library, Ondo, Nigeria	6	2	S
3.	Achievers University Library, Owo	16	1	P
OSUN STATE				
1.	Obafemi Awolowo University Library, Ile-Ife Nigeria	37	2	F
2.	Osun State University Library, Osogbo Nigeria	11	1	S
3.	Fountain University Library, Osogbo Nigeria	15	1	P
TOTAL		**345**	**27**	**(= 372)**

Source: Staff list from the selected universities (2025)
Note: F = Federal; S = State; P = Private.

Table 1 presents the distribution of the study population across 18 university libraries located in Lagos, Oyo, Ekiti, Ogun, Ondo and Osun States. The population comprises 345 librarians and 27 system analysts, giving a total of 372 respondents. Librarians therefore constitute approximately 92.7% of the study population, while system analysts account for about 7.3%. By state, Oyo has the largest staff representation with 102 respondents, followed by Osun with 67, Ondo with 55, Lagos and Ekiti with 54 each, and Ogun with 40. The selected institutions also provide balanced coverage by ownership type, as each state contributes one federal, one state and one private university. In aggregate, federal universities contribute 203 respondents, state universities 105, and private universities 64. This distribution indicates that the study population is dominated by librarians and by staff from federal universities, while still retaining representation from all three ownership categories across the six states.

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Table 2: Study Sample Size

S/N / State	University Library	Librarians	System Analyst	Ownership type
LAGOS STATE				
1.	University of Lagos Library, Akoka, Nigeria	25	2	F
2.	Lagos State University Library, Ojo, Nigeria	21	1	S
3.	Augustine University Library, Epe, Nigeria	4	1	P
OYO STATE				
1.	University of Ibadan Library Nigeria	60	2	F
2.	Ladoke Akintola University of Technology, Library Ogbomoso, Nigeria	26	1	S
3.	Ajayi Crowther University Library, Oyo, Nigeria	11	2	P
EKITI STATE				
1.	Federal University Oye-ekiti Library, Nigeria	23	2	F
2.	Ekiti State University Library, Ado-ekiti, Nigeria	19	2	S
3.	Bamidele Olumilua University of Education, Science and Technology Library, Ikere-ekiti, Nigeria	7	1	P
OGUN STATE				
1.	Federal University of Agriculture, Abeokuta, Nigeria	19	1	F
2.	Olabisi Onabanjo University Library, Ago Iwoye, Nigeria	13	2	S
3..	Bells University of Technology Library, Otta, Nigeria	4	1	P
ONDO STATE				
1.	Federal University of Technology Library, Akure, Nigeria	28	2	F
2.	Ondo State University of Medical Sciences Library, Ondo, Nigeria	6	2	S
3.	Achievers University Library, Owo, Nigeria	16	1	P

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OSUN STATE				
1	Obafemi Awolowo University Library, Ile-Ife, Nigeria	37	2	F
2	Osun State University Library, Osogbo, Nigeria	11	1	S
3.	Fountain University Library, Osogbo, Nigeria	15	1	P
TOTAL		**345**	**27**	**(= 372)**

Source: Staff list from the selected universities (2025)
Note: F = Federal; S = State; P = Private.

Table 2 shows a sample size of 372 respondents, made up of the same 345 librarians and 27 system analysts reported in the study population. Because the sample size is equal to the entire population (372), the table indicates that the study adopted a total-enumeration or census approach, in which all identified members of the accessible population were included rather than selecting a smaller sample. This approach removes sampling error arising from the selection of only part of the population and ensures that every listed university and staff category is represented in the data collection. However, the validity of this interpretation depends on the researcher actually administering the instrument to all 372 eligible respondents. If a sampling formula was intended, then Table 2 should ordinarily contain a reduced sample rather than exactly repeat the population distribution. The two tables are numerically identical. Therefore, the clearest methodological description is that the study population was 372 and that all 372 members were targeted for participation through total enumeration. This should be stated consistently in the methodology chapter to avoid describing 372 as a statistically selected sample when no reduction from the population occurred.

Data Presentation, Analysis and Discussion of Findings

Table 3: Results of the Pilot Test of Reliability of the Research Instrument

S/N	Variables	Cronbach's Alpha
1	Technical Know-how of the LMS	0.71
2	User Friendliness of the LMS	0.79
3	Ease of Use of LMS	0.77
4	Resource Management Practice	0.82
5	Extent of LMS Use	0.76
6	Challenges Affecting the Usability of LMS	0.74
7	**Average Reliability Coefficient**	**0.77**

Table 3 presents the results of the pilot test conducted to determine the internal consistency of the research instrument. The Cronbach's alpha coefficients ranged from 0.71 to 0.82. Resource Management Practice recorded the highest reliability coefficient (α = 0.82), followed by User Friendliness of the LMS (α = 0.79), Ease of Use of LMS (α = 0.77), Extent of LMS Use (α = 0.76), Challenges Affecting the Usability of LMS (α =

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0.74), and Technical Know-how of the LMS (α = 0.71). The average reliability coefficient across the six variables was 0.77. Since all coefficients exceeded the commonly accepted minimum benchmark of 0.70, the instrument demonstrated satisfactory internal consistency and was considered reliable for the main study.

Demographic Information of the Respondents

Table 4: Demographic Information of the Respondents

Demographic Characteristics	Frequency	Percentage (%)
Gender		
Male	224	63.3
Female	130	36.7
Total	**354**	**100.0**
Age Range (Years)		
20–30	36	10.2
31–40	94	26.6
41–50	135	38.1
51 and above	89	25.1
Total	**354**	**100.0**
Professional Status		
Librarian	330	93.2
System Analyst	24	6.8
Total	**354**	**100.0**
Years of Working Experience		
1–5	60	16.9
6–10	37	10.5
11–15	59	16.7
16–20	88	24.9
21–25	24	6.8
26–30	70	19.8
31–35	16	4.5
Total	**354**	**100.0**

N = 354; Source: Field Survey, 2026

Table 4 shows that 224 respondents (63.3%) were male, while 130 (36.7%) were female. Thus, male respondents constituted the larger proportion of the sample. With respect to age, the largest group was respondents aged 41–50 years, accounting for 135 (38.1%) of the sample. This was followed by those aged 31–40 years with 94 (26.6%), respondents aged 51 years and above with 89 (25.1%), and those aged 20–30 years with 36 (10.2%). The distribution therefore indicates that respondents aged 41–50 years were the most represented age group.

The professional status distribution shows that 330 respondents (93.2%) were librarians, whereas 24 (6.8%) were system analysts. This indicates that the responses largely reflect the views and experiences of librarians, although system analysts were also represented. Regarding years of working experience, respondents with 16–20 years of experience formed the largest group, with 88 (24.9%). They were followed by respondents with 26–30 years of experience, 70 (19.8%); 1–5 years, 60 (16.9%); 11–15 years, 59 (16.7%); 6–10 years, 37 (10.5%); 21–25 years, 24 (6.8%); and 31–35 years,

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16 (4.5%). Overall, the distribution suggests that the study included respondents with varied levels of work experience, with a substantial proportion having more than 15 years of professional experience.

Research Question: What is the level of technical know-how of librarians and system analysts in the use of library management systems to manage library resources in university libraries in Southwest, Nigeria?

Table 5: Level of Librarians and System Analysts Technical Know-how in the Use of LMS

S/N	Statement	VH	H	L	VL	Mean	S.D.
A	**Content management skills**					**2.99**	**0.76**
1	My level of assigning appropriate metadata to digital and print resources in the LMS is…..	197 (55.6%)	143 (40.4%)	6 (1.7%)	8 (2.3%)	3.49	0.64
2	My proficiency in navigating the library management system to access various resources is….	96 (27.1%)	203 (57.3%)	44 (12.4%)	11 (3.1%)	3.08	0.71
3	The level to which I can use LMS to organize resources by categories, subjects, or departments is….	109 (30.8%)	109 (30.8%)	125 (35.3%)	11 (3.1%)	2.89	0.88
4	The level at which I can manage resource links and ensure that all digital content is accessible and functional is….	110 (35.3%)	97 (27.4%)	125 (35.3%)	22 (6.2%)	2.83	0.94
5	The level of maintain consistency and accuracy of bibliographic records in the LMS is….	156 (44.1%)	161 (45.5%)	37 (10.5%)	-	2.66	0.65
B	**Technical Troubleshooting**					**2.72**	**0.74**
6	The level to which I can troubleshoot problems related to data entry and record updates is …..	138 (39.0%)	106 (29.9%)	11 (3.1%)	99 (3.1%)	3.04	0.89
7	I can manage database synchronization and data integrity problems in the LMS to a …..	68 (19.2%)	187 (52.8%)	99 (28.0%)	-	2.91	0.68
8	The level to which I can troubleshoot system crashes or unexpected shutdowns of the LMS is …..	33 (9.3%)	154 (43.5%)	167 (47.2%)	-	2.62	0.65
9	I can troubleshoot barcode scanners, RFID devices, or printers connected to a	68 (19.2%)	89 (25.1%)	186 (52.5%)	11 (3.1%)	2.60	0.82
10	The level to which I can identify and solve login and access problems in the LMS is…...	33 (9.3%)	113 (31.9%)	197 (55.6%)	11 (3.1%)	2.47	0.70
C	**ICT Competence**					**2.81**	**0.81**
12	I can install and configure basic LMS applications when required to a ……	237 (66.9%)	95 (26.8%)	11 (3.1%)	11 (3.1%)	3.57	0.70
11	I can operate the library management system without assistance to a……	186 (52.5%)	58 (16.4%)	11 (3.1%)	99 (28.0%)	3.18	0.94
13	The level to which I can accurately enter bibliographic and user data into the LMS is …..	119 (33.6%)	68 (19.2%)	145 (41.0%)	22 (6.2%)	2.80	0.97
14	I can use computers and related information communication technology tools to support LMS operations to a ……	74 (20.9%)	122 (34.5%)	98 (27.7%)	60 (16.9%)	2.59	1.00
15	I can integrate external	9	6	296	43	1.94	0.48

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	databases or repositories into the LMS to a ……	(2.5%)	(1.7%)	(83.6%)	(12.1%)		
D	**System Configuration**					**2.26**	**0.66**
16	The level to which I can configure LMS modules, such as cataloging, circulation, and OPAC is ……	94 (26.6%)	37 (10.5%)	208 (58.8%)	15 (4.2%)	2.59	0.92
17	I can customize the LMS interface to meet library operational needs to a …..	73 (20.6%)	116 (32.8%)	105 (29.7%)	60 (16.9%)	2.57	0.99
18	I can configure the import and export of bibliographic records in the LMS to a ……	12 (3.4%)	53 (15.0%)	261 (73.7%)	28 (7.9%)	2.13	0.58
19	I can install the library management system on a server or workstation to a …...	7 (2.0%)	10 (2.8%)	322 (91.0%)	15 (4.2%)	2.02	0.38
20	I can configure system backups and automated update schedules to a……	4 (1.1%)	26 (7.3%)	296 (83.6%)	28 (7.9%)	2.01	0.44

Overall average mean = 2.69; Overall standard deviation = 0.74
N = 354 (Source: Field Survey, 2026)

Decision Rule: 1.00–1.74 = Very Low; 1.75–2.49 = Low; 2.50–3.24 = High; 3.25–4.00 = Very High. The criterion mean is 2.50, calculated as (4 + 3 + 2 + 1) / 4 = 2.50. Any mean score of 2.50 and above is interpreted as High or Very High, while any mean score below 2.50 is interpreted as Low or Very

Table 5 presents the level of technical know-how of librarians and system analysts in the use of Library Management Systems (LMS) across four dimensions: content management skills, technical troubleshooting, ICT competence, and system configuration. Using the criterion mean of 2.50, the overall average mean of 2.69 with a standard deviation of 0.74 indicates that the respondents generally possess a high level of technical know-how in the use of LMS. This suggests that, on the whole, librarians and system analysts are reasonably capable of carrying out routine LMS-related tasks, although their competence is not equally strong across all technical areas. Content management skills recorded the highest dimension mean of 2.99 (SD = 0.76), which falls within the High category. This implies that respondents are generally competent in managing library content within the LMS. Particularly strong areas include assigning metadata to digital and print resources (Mean = 3.49, Very High), navigating the LMS to access resources (Mean = 3.08, High), organizing resources by categories, subjects, or departments (Mean = 2.89, High), and managing resource links and digital content accessibility (Mean = 2.83, High). The reported mean for maintaining consistency and accuracy of bibliographic records is 2.66, which also falls within the High category. Thus, the respondents demonstrate comparatively strong competence in day-to-day content organization and bibliographic management tasks.

Technical troubleshooting produced a dimension mean of 2.72 (SD = 0.74), indicating a High level of competence. Respondents reported high competence in troubleshooting system crashes or unexpected shutdowns (Mean = 2.62), problems related to data entry and record updates (Mean = 3.04), database synchronization and data integrity problems (Mean = 2.91), and troubleshooting barcode scanners, RFID devices, or printers (Mean = 2.60). However, the ability to identify and solve login and access problems

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recorded a mean of 2.47, which falls within the Low category. This shows that although the respondents demonstrate acceptable troubleshooting ability overall, some basic access-management problems may still require additional technical support or training. ICT competence had a mean of 2.81 (SD = 0.81), also interpreted as High. The highest-rated item in the entire table is the ability to install and configure basic LMS applications when required (Mean = 3.57, Very High). Respondents also reported high competence in operating the LMS without assistance (Mean = 3.18), entering bibliographic and user data accurately (Mean = 2.80), and using computers and related ICT tools to support LMS operations (Mean = 2.59). In contrast, the ability to integrate external databases or repositories into the LMS recorded a mean of 1.94, indicating Low competence. This reveals a notable skills gap in more advanced interoperability and systems-integration tasks.

System configuration recorded the lowest dimension mean of 2.26 (SD = 0.66), which is interpreted as Low. Respondents reported low competence in installing the LMS on a server or workstation (Mean = 2.02), configuring the import and export of bibliographic records (Mean = 2.13), and configuring system backups and automated update schedules (Mean = 2.01). Although customizing the LMS interface (Mean = 2.57) and configuring LMS modules such as cataloguing, circulation, and OPAC (Mean = 2.59) were rated High, the overall result indicates that respondents are less confident in advanced back-end configuration and system administration tasks. Overall, the results indicate that librarians and system analysts have stronger competence in operational and user-facing LMS activities than in advanced technical configuration. Their strongest areas are content management, basic application configuration, and routine troubleshooting, whereas system installation, database/repository integration, backup configuration, and record import/export are comparatively weak. The implication is that targeted capacity-building programmes should focus on advanced LMS administration, server installation, systems integration, backup and recovery procedures, and database configuration so as to strengthen the technical independence and efficiency of library personnel.

Hypothesis Testing

There is no significant relationship between librarians' technical know-how and resource management practice in university libraries in Southwest Nigeria.

Table 6. Technical Know-how of Librarians and Resource Management Practice in University Libraries in Southwest Nigeria

Variables	Mean	Std. Dev.	N	DF	r	p-value	Remarks
Technical Know-how	54.076	7.992	354	352	.307*	< .001	**Significant**
Resource Management Practice	54.878	10.014					

** Correlation is significant at the 0.05 level (2-tailed). Source: Field Survey, 2026*

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The Pearson correlation result shows a positive and statistically significant relationship between librarians' technical know-how and resource management practice ($r = .307$, $df = 352$, $p < .001$, $N = 354$). Therefore, the null hypothesis is rejected. This implies that higher technical know-how among librarians is associated with better resource management practice in university libraries in Southwest Nigeria. The relationship is positive but modest in magnitude.

Table 7: Zero-order correlation between Liberian's Technical Know-how and Resource Management Practice in University Libraries in South-west Nigeria

Variables	Resource management practice	Content management skills	Technical troubleshooting	ICT competence	System configuration
Content management skills	.073 (.170)	1			
Technical Troubleshooting	.368* (.000)	.877* (.000)	1		
ICT competence	.256* (.000)	.841* (.000)	.812* (.000)	1	
System configuration	.370* (.000)	.236* (.000)	.327* (.000)	.396* (.000)	1
Mean	54.87	14.96	13.66	14.10	11.34
Std. Deviation	10.01	2.46	3.02	2.22	1.60
Resource management practice	1				

(Source: Field Survey, 2026)

Table 7 shows a zero-order correlation analysis showing the relationship between Liberians technical know-how of librarians and resource management practices in university libraries in Southwest Nigeria. The analysis breaks down technical know-how into four that is content management skills, technical troubleshooting, Information Communication Technology Competence and system configuration. The results show that system configuration skills ($r = 0.370$, $p = 0.000$), technical troubleshooting skills ($r = 0.368$, $p = 0.000$), and ICT competence ($r = 0.256$, $p = 0.000$) are all positively and significantly correlated with RM practices. This indicates that librarians with stronger abilities in system configuration skills, troubleshooting skills and ICT competent are more effective in managing library resources. However, content management skills ($r = 0.073$, $p = 0.170$) do not show a significant relationship with resource management practice. This implies that although content management is important, only it does not strongly influence overall resource management effectiveness.

Analysis of the Qualitative Data

This section presents the analysis of qualitative data obtained from the interview conducted with a system analyst in a selected university libraries

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in South-west, Nigeria. The analysis is organized into themes based on the following research variables: technical know-how, user friendliness, ease of use and, resource management practices. A total of 245 codes were extracted from the interview transcripts and six (6) themes were generated from the codes. The themes include types of LMS adopted by the library for resource management, influence of technical know-how on resource management practice, influence of user friendliness on resource management practice, influence of ease of use on resource management practice challenges faced while using LMS for resource management, and recommendations to the challenges identified. The analyses are presented as follows:

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Codes and information of participants

Table 8: Codes and information of participants

Participants' Codes	Rank	Years of experience
Participant 1	System Analyst	14 years
Participant 2	System Analyst	12 years
Participant 3	System Analyst	20 years
Participant 4	System Analyst	15 years
Participant 5	System Analyst	20 years
Participant 6	System Analyst	14 years
Participant 7	System Analyst	17 years

Source: Fieldwork works of authors (2026)

The results in Table 8 showed that seven (7) participants were interviewed for this study. The results showed that the average experience of the participants was 13 years. This buttresses the credibility of the information and data collected for this study. Furthermore, the system analyst participated in the study.

Influence of technical know-how on resource management

The interview responses revealed that technical know-how has a significantly influences on resource management practices in university libraries. Most participants agreed that staff with higher technical competence are more effective in cataloging, database management, and system use. The responses are as follows:

Participant 1:

> *"Technical know-how plays an important role in resource management. In our library, staff who are proficient in the use of the LMS can catalog, classify, and retrieve materials more accurately. However, those with limited skills often struggle, which sometimes leads to resource organization delays and errors"*

Participant 2:

> *"From my experience, technical competence directly affects how effectively the LMS is used. Staff with strong ICT skills can easily manage databases, troubleshoot issues, and ensure that*

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records are properly updated. This improves library's overall resource management in the library."

Participant 3:

"I believe that technical know-how has a moderate influence. Although the system itself is designed to be user-friendly, staff still need basic training to effectively use it. Without adequate skills, fully utilize the system's features for managing resources."

Participant 4:

"Technical skills are essential, especially in cataloging and creating metadata. If a librarian lacks the necessary know-how, it affects the accuracy of bibliographic records, which in turn impacts the ability of users to find materials. Therefore, technical skill are critical for effective resource management."

Participant 5:

"In my opinion, technical know-how is not the only factor. Even when staff are skilled, issues such as poor internet connectivity and system downtime can still affect resource management. However, having technical knowledge helps staff adapt better to these challenges."

Participant 6:

"There technical know-how and resource management practice. This is because well-trained staff can maximize the use of the LMS, integrate digital resources, and maintain accurate records. This would lead to improved service delivery and resource organization."

Participant 7:

"I believe that technical know-how significantly influences resource management significantly, but many staff still need more training. Some of us learned on the job, which affects how efficiently we use the system. With more training, resource management would definitely improve."

Source: Field Study 2026

Discussion of the Findings

This section presents the discussion of the findings from the data interpreted from this study in relation to the literature that was reviewed. This study aimed to show the relationship with previous study which was informed by

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the set objectives and hypotheses of the study. The findings of this study revealed that librarians and system analysts in university libraries in South-west Nigeria is high. This is because the majority of the respondents possess strong competencies in routine and operational aspects of LMS use, particularly in content management and basic Information Communication Technology functions. This indicates that respondents are well equipped to handle day-to-day library operations, such as cataloging, circulation, and basic system use. This proficiency is expected, because these functions form the core responsibilities of library professionals and are frequently performed in their daily activities. This finding is in agreement with Jabeen's (2024) who reported librarians are tend to demonstrate higher competence in routine system use than technical problem-solving and system-level tasks. This finding also supports the work of Asim (2025), who noted that librarians are generally proficient in basic Information Communication Tecnology ICT and LMS operations, and many lack advanced technical skills necessary for system customization and maintenance.

Conclusion

This study examines the technical know-how, user friendliness, and ease of use of a library management system for resource management in universities in Southwest, Nigeria. The findings revealed that LMS adoption is widespread, with a strong preference for open-source platforms especially KOHA and Dspace, and that these systems are extensively utilized across core library operations, such as cataloging, circulation, acquisition, and user management. The study established that librarians and system analysts possess strong competencies in routine and operational aspects of LMS use, especially in content management and basic Information Communication Technology. However, their proficiency declines in more advanced technical areas, such as system configuration, integration, and troubleshooting, indicating a gap that may limit optimal system use.

Implications of the findings

The finding that librarians possess strong operational skills (basic Information Communication Technology skills) but limited advanced technical competencies has significant implications for capacity building. This indicates a pressing need for continuous professional development programs focusing on advanced ICT skills such as system configuration, integration, and troubleshooting. Therefore, libraries may not fully utilize the capabilities of their LMS, thereby limiting overall effectiveness.

Study Recommendations

Based on the findings of this study, the following recommendations are rendered to enhance the effective use LMS resource management in university libraries in Southwest Nigeria:

1. There is a need for Liberians and system analysts to undergo continuous training and capacity building. Regular workshops, seminars, and hands-on training should be organized to improve both

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basic and advanced technical skills, particularly in areas such as system configuration, integration, and troubleshooting.

2. University management and relevant stakeholders should invest in reliable Information Communication Technology infrastructure. Improving internet connectivity and ensuring stable network access will significantly enhance LMS's usability and performance of LMS in library operations.
3. Efforts should be made to minimize system downtime through regular maintenance, system upgrades, and adequate technical support. Libraries should also establish dedicated IT support units to promptly address system-related issues

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