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Analysis of Librarians' Competencies for Library Automation as Determinant of Electronic Information Services Provision in Federal University Libraries in South-East, Nigeria

Eno Okon Richard
University Library, Akwa Ibom State University, Ikot Akpaden
enorichard@aksu.edu.ng
08027896881

Mary Sunday Enidiok
Department of Library and Information Science, University of Calabar
maryenidiok@gmail.com

Edidiong Abraham Akpan-Atata
University Library, Akwa Ibom State University, Ikot Akpaden
edidiongakpanatata@aksu.edu.ng

Etebong Nyong Inyang
University Library, Akwa Ibom State University, Ikot Akpaden
Etenyong23@gmail.com

Abstract
The study examined librarians' competencies for library automation as determinant of electronic information services provision in federal university libraries in South-East, Nigeria. It adopted a correlational research design. The population of the study consisted of two hundred and eleven (211) academic and non-academic librarians from three (3) federal university libraries in Abia, Enugu and Imo States. A sample size of 107 librarians, representing 51% of the study population was selected using the proportionate stratified random sampling technique, while a two set of self-structured questionnaires were used for data collection. The questionnaires were validated for appropriateness and pretested for reliability using Cronbach Alpha formula, which yielded a cumulative reliability coefficient index of 0.86. The data collection process yielded a response rate of 90% from 96 validly completed copies of the questionnaires. The data collected were analysed using Pearson Products Moment Correlation (PPMC), while the corresponding null hypotheses were tested with the use of simple linear regression at 0.05 level of significance. The study revealed that librarians' project management skills, knowledge of library software management and metadata management skills have significant relationship with electronic information services provision in federal university libraries in South-East, Nigeria. It recommended that management of federal university libraries should prioritize the training and retraining of librarians on library automation processes, as well as provide relevant facilities such as constant power supply, internet access, library management system and other requisite

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facilities in order to enable librarians provide electronic information services to the teeming users of the university libraries.

Keywords: Librarians' Competencies, Library Automation, Electronic Information Services Provision, Federal University Libraries, South-East, Nigeria.

Introduction

The growing expectations for more satisfying services provision including electronic information services in the modern university libraries cannot be overemphasized. This is due to the changing needs, taste, and preferences of library patrons, as well as the competitive environment within which the university libraries operate. In fact, university libraries are practically competing with other information services providers such as Internet cafés, information vendors, and other proprietary information merchants. University libraries are reservoir of information and knowledge for the propagation of academic excellence through effective teaching, learning and research (Arua & Udoh, 2019; Richard et al., 2024; Udoh et al. 2023). University libraries are the heart of the universities (Igbashal & Beetseh, 2019), and the central point of intellectual activities with the core mandate of supporting formal education, promoting literacy, and cultivating a culture of lifelong learning (Gushit et al., 2024). This underscores the position of Akpan-Atata et al. (2015) who posited that the primary purpose of university libraries is to support teaching, learning and research in ways consistent with, and supportive of the parent institutions' mission and national development. This implies that for the university libraries to fulfil their expectations as critical establishments and essential organs of the universities, they need to effectively embrace momentous paradigms such as implementation of library automation for enhanced electronic information services provision.

Electronic information services are innovative services provided through the use of online platforms such as computer-based tools for enhanced access, retrieval and utilization. Akwang and Udoh (2024) defined electronic information services as Internet-based services provided and/or accessible through search engines, library blogs, library websites, digital libraries, institutional repositories, or organized offline platforms like CD-ROMs and Calibre systems for the satisfaction of library users' needs. They are invaluable services built on the premise of reaching greater number of library users at the same time with less effort and costs. Electronic information services are of diverse types, including Online Public Access Catalogues (OPACs), Web public access catalogues (WebPAC), self-archival services, e-literature search services, e-mails, e-books, e-Current Awareness Services (e-CAS), mobile apps like blogs, digital library and institutional repository services, e-Selective Dissemination of Information (e-SDI), e-journals, e-newspapers, e-manuscripts, e-maps, e-magazines, e-thesis, e-dissertations, e-research reports, e-reference services, amongst others (Iquo et al., 2022; Mallikarjuna & Padmamma, 2020; Okogwu & Dike, 2017; Udoh et al., 2020). They are less cumbersome in generation, processing, storage and accessibility when compared with print-based information. They are easily accessible across geographical boundaries, time zone or financial situation of the library patrons. They are also more convenient, user-friendly, faster, and readily available for users at any time and any place.

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More so, provision of electronic information services facilitates access to more current and up-to-date information. Provision is the process of delivering or ensuring that library users have access to electronic information services in the university libraries. Provision of electronic information services is a precursor or motivation for accessibility, retrieval and utilization of electronic information services. It helps in enhancing the satisfaction of users' information, research, educational and recreational needs in the university libraries (Iquo et al., 2022; Mensa et al., 2023). Effective provision of electronic information services to library users can be better harnessed if the services are automated. This implies that effective electronic information services provision could be dependent on the availability and functionality of library automation.

Library automation is the application of Information and Communication Technologies (ICTs) to complement the manually performed library operations. According to Atanda (2018), library automation is the use of automatic and semi-automatic data processing machines like computer devices to perform traditional library activities and functions such as acquisition, circulation, cataloguing, reference, current awareness services, selective dissemination of information, amongst others. It is the process of automating or electronically performing library services such as readers' services, technical services, acquisition services, cataloguing and classification services or other routine and housekeeping operations of the libraries (Olakoge & Kolawole, 2019). It is equally construed by Gushit et al. (2024) as the application of mechanical and electrical devices to carry out library tasks which were formerly performed manually with the aim of achieving improved productivity and efficiency in the library service delivery. It involves the use of computer systems and other digital devices to manage library functions and services to achieve better, more accurate and faster outcomes. It helps in handling a vast amount of information and providing faster, accurate, precise, efficient, and effective information services to library users. Library automation is of paramount importance in modernizing and streamlining library operations and services, while significantly enhancing efficiency and accessibility. It represents innovative and creative platforms through which university libraries provide new products and services to library users through the use of new techniques (Akpan-Atata et al., 2014). It enables librarians to manage large volumes of data efficiently, and enhances users' satisfaction and experience by saving their time in accessing library services through automated platforms. It facilitates quicker and easier retrieval of information and reduces the time spent on manual tasks in order to promote better resource discovery in an information rich environment. Library automation significantly supports timely updates and seamless provision of electronic information resources in line with evolving users' needs and preferences.

Therefore, to effectively leverage the gains and benefits of library automation for electronic information services provision, librarians as purveyors of information and catalysts for change must be well-equipped with requisite competencies. This position aligns with Aloysius et al. (2025) who opined that university libraries need competent personnel to be able to provide the setup as well as intermediate between the technology and users. The competent librarians are required to handle the networks, servers, storage, applications, and perform authentication, authorization, access, control and monitoring for successful library automation and effective electronic information services provision in the university libraries. These competencies

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include a fair knowledge of library automation project, ability to select and manage library automation software, ability to identify trends and technical issues in library automation systems and digital literacy skills to handle new technologies and evaluate their suitability for electronic information services in the university libraries. Librarians' competencies for library automation and electronic information services provision may also include the ability to communicate and collaborate with users, staff, vendors, and other professionals on library automation projects as well as ability to manage transitions and challenges associated with implementation of library automation technologies for effective services delivery. Therefore, based on the above background, this study examined librarians' competencies for library automation as determinant of electronic information services provision in federal university libraries in South-East, Nigeria.

Statement of the Problem

The existence of electronic information services in university libraries is common knowledge but its provision to the satisfaction of users in most developing countries including Nigeria may not be to extent expected. Effective provision of electronic information services is determined by how competent the librarians are in managing and ensuring the ease of access and retrieval of the services. It is also characteristically influenced by how effective the services are automated to enhance seamless availability, accessibility and retrieval. However, despite the importance of library automation in the provision of library services, it is disheartening to observe that most Nigerian university libraries are yet to be automated due to lack of requisite competencies by the librarians (Gushit et al., 2024). This, obviously, has negative effects on electronic information services provision in most of the university libraries. As a matter of fact, many studies clearly identified lack of requisite skills and competencies as one of the major impediments to library automation in university libraries in Nigeria and most other countries (Ajani & Buraimo, 2021; Hussaini et al., 2025). These positions are buttressed by these researchers' preliminary observation, which show that most librarians in university libraries are not adequately knowledgeable, skilled or competent in the core areas of library automation like having good technical knowledge for initiating library automation project and understanding issues of compatible hardware and software systems for successful library automation. This backdrop is deeply troubling and as such, aroused these researchers' interest to investigate librarians' competencies for library automation as determinant of electronic information services provision in federal university libraries in South-East, Nigeria.

Research Objectives

The main objective of the study was to examine librarians' competencies for library automation as determinant of electronic information services provision in federal university libraries in South-East, Nigeria. The specific objectives were:

i. To examine the relationship librarians' project management skills and electronic information services provision in federal university libraries in South-East, Nigeria.
ii. To assess the relationship between librarians' knowledge of library software management and electronic information services provision in federal university libraries in South-East, Nigeria.

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iii. To determine the relationship between librarians' metadata management skills and electronic information services provision in federal university libraries in South-East, Nigeria.

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance.

H01: There is no significant relationship between librarians' project management skills and electronic information services provision in federal university libraries in South-East, Nigeria.

H02: There is no significant relationship between librarians' knowledge of library software management and electronic information services provision in federal university libraries in South-East, Nigeria.

H03: There is no significant relationship between librarians' metadata management skills and electronic information services provision in federal university libraries in South-East, Nigeria.

Literature Review

Librarians' Competencies

Competencies are the embodiments of various skills and abilities required for the performance of routine or professional duties in a given situation. The American Library Association (ALA, 2023) defined competencies as the basic, specialized or advanced knowledge, skills and attributes required to create and support library collections, services, personnel, facilities, and programmes for equitable access and use of library and its resources. Librarians' competencies are indispensable for managing library automation project and contributing to effective electronic information services provision for enhanced users' satisfaction in university libraries. According to George and Tom-George (2024), librarians' competencies involve a wide range of skills such as proficiency in integrated library systems (ILS), digital asset management systems, automated circulation systems, budgeting, time management, team collaboration, and risk management, as well as understanding of information ethics such as data privacy and security, intellectual property, and the ethical use of technologies. The authors further noted that librarians need to be comfortable and versatile with the software and hardware that power library automation, including networking, and cloud computing. Inherently, library automation relies on computing and information technology skills as well as high level of information literacy skills. It involves having a good knowledge of emerging technologies such as artificial intelligence (AI), machine learning, and data analytics are crucial in library automation and electronic information services (Bolasco, 2023). Librarians' competencies for library automation and electronic information services provision also embed the ability to critically evaluate and manage digital information such as e-books, digital archives, and other electronic information resources. It is also essential to possess a good set of skills in metadata creation, digital preservation, and understanding digital rights management (DRM), as well as skills in big data management since automated libraries generate vast amounts of data from user interactions to system performance metrics. In summary, librarians' competencies are critical in making informed decisions for improved services to users in the university libraries.

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Library Automation

Library automation represents one of the emerging systems in libraries propelled by the advancement in Information and Communication Technologies (ICTs) with the aim of enhancing the housekeeping functions and services of the libraries. According to Ujoumunna et al. (2021), library automation is the application and use of computer systems to run the activities of the library where circulation and cataloguing activities are easily manipulated via digital systems with or without human interface. Library automation as the application of ICTs to automate the major activities of the library such as circulation, acquisition, serial control and cataloguing presents innovative opportunities to libraries for enhanced services delivery and users' satisfaction (Ikegwuiro et al., 2023). It is defined as the utilization of computer and other information communication technologies (ICTs) for provision of better, wider, immediate and relevant information to users at the right time in order to manage and sustain different library resources and operations such as acquisition, cataloguing, circulation, serials and reference services provision (Gushit et al., 2024). It involves the integration of machines and computer systems like browser applications using XML and style sheets for display, and developing XML import and export functions and integrating the library access and reading portal with learning management systems for better services (Reitz, 2020).

Library automation minimizes human intervention in the functioning of the libraries, while maximizing the quality and standard of services. It is a pragmatic shift from manualized services delivery to digitalized or automated systems with high prospects for better, more efficient and satisfactory services for users in the university libraries. It also facilitates speedy cataloguing of library resources, and accelerates the ease of access, retrieval and use of library resources and services for the fulfilment of academic activities including research and recreational reading. It facilitates seamless access to digital information resources and remote services, aligning with the growing demand for accessible academic resources in modern education. In summary, library automation particularly helps librarians in dealing with the issues of information explosion, inadequate storage space, better control of resources, effective resource sharing, accuracy and promptness in services delivery as well as wider access to literature for enhanced provision of electronic information resources and services for users' satisfaction in university libraries.

Electronic Information Services Provision

Electronic information services are essentially the services provided to library users in the university libraries through the use of electronic or digital devices. They are critical components of the emerging innovative and creative library services made available to library users of the 21st century (Akpan-Atata et al., 2014; Mensa et al., 2023). Similarly, Uzuegbu and Udoh (2023) conceived electronic information services as invaluable information services available online and accessible via technological devices. They are computer-based database of books, journals, dictionaries, encyclopaedias and other information services which are accessible via electronic media (Odunewu & Aluko-Arowolo, 2018). Studies show that electronic information services provided to library users in the university libraries include: Online Public Access Catalogues (OPACs), Web public access catalogues (WebPAC), self-archival services, e-literature search services, e-mails, e-books, e-Current Awareness Services (e-CAS), mobile apps like blogs, digital library and institutional repository services, e-

Selective Dissemination of Information (e-SDI), e-journals, e-newspapers, e-manuscripts, e-maps, e-magazines, e-thesis, e-dissertations, e-research reports, e-reference services, amongst others (Iquo et al., 2022; Mallikarjuna & Padmamma, 2020; Okogwu & Dike, 2017; Udoh et al., 2020). Meanwhile, electronic information services provision characteristically requires a variety of new set of skills and competencies such as word processing skills, internet search skills, Web 2.0 skills, uploading and downloading skills, ability to use multimedia tools like podcasts and vodcasts, library automation skills like knowledge of library software, digital library competencies, computer hardware competencies, etc. (Akwang & Udoh, 2024; Akwang, 2021; Bajpai & Margam, 2019; IFLA, 2019; Akpan-Atata et al., 2015). Electronic information services provision enhances effective learning and teaching in universities. It promotes quality and faster research activities through accelerated access and retrieval of research materials. It also promotes the roles of university libraries as the reservoir of information and knowledge for sustainable knowledge sharing. It ensures multiple and simultaneous remote access to electronic information services across geographical locations for better users' satisfaction, as well as serves as cost-effective measures for both librarians and library users in the university libraries.

Librarians' project management skills

Librarians' project management skills represent one of the core competencies for successful library automation with strong implications for electronic information services provision in university libraries. Characteristically, library automation is a capital-intensive project requiring various facilities, human, financial and materials resources from start to sustainable functionality. Project management skills involve the ability to initiate, effectively plan, implement, and monitor library automation project in order to ensure that set objectives are met while improvement in service delivery is sustained. Igberaese, as cited in Prosser (2024) posited that project management is a professional engagement requiring knowledge, skills, tools, and techniques to the systematic management of a variety of projects, which are generally defined as being specific and unique undertakings that have definite start and end times. Library automation is a kind of project management endeavour involves using knowledge, skills, tools, methods, and techniques to deliver established project goals, meet stakeholders' needs and expectations, and create something of value (Project Management Institute, 2022). It involves independent activities and processes for the deployment of resources such as money, materials and human labour to achieve predetermined goals. George and Tom-George (2024) considered project management skills as critical in the execution of library automation, which help in deciding software systems, digital collections, and technology upgrades. These skillsets enable librarians to carry out effective budgeting, time management, effective collaboration, and risk management. It helps university libraries in dealing with shrinking and shifting budgets which can affect library automation project outcomes (Stoner, 2023). Thus, project management skills lead to better outcomes, improved documentation and communication, and the acquisition of additional skills by librarians for successful library automation and effective electronic information services provision in university libraries.

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Librarians' knowledge of library software management

One of the fundamental considerations for successful library automation and electronic information services provision in university libraries is library software management ability. This is necessary because functional library automation system and electronic information services provision is driven by library software. In other words, librarians' knowledge of compatible library software is central to successful library automation and effective generation, processing, storage and provision of electronic information services. Karim et al. (2016) posited that software drives hardware components of the computer in the same way human body is driven by the human blood. Library software is a set of instructions or programme designed to enable effective performance of library operations, functions and services (Sambe et al., 2015). They can be simply seen as library management software customized for document storage, retrieval and for related data management responsibilities in the libraries (Adeniyi, as cited in Sambe et al., 2015). Library software is responsible for controlling, managing and enabling computer-based library programmes to function effectively in line with set goals for the satisfaction of library users (Inyang & Mngutayo, 2018). Studies show that there are various types of library software, which could be used in library automation such as CDS/ISIS, Greenstone, Integrated Management System, KOHA, Fedora, Avanti, ADLIB, E-Print, DSPACE, GLAS, SLAM, SLIM, ABCD, VIRTUA, TINLIB, ALICE, MINISIS, Mastalib, AFW, Bookwhere, Lib+, Gnuteca, InfoCID, Jayuya, NewGenLib, OPALS, OpenAmapthèque, OpenBiblio, PhpMyLibrary, PMB, Senayan, etc. (Ahmed & Ahmed, 2024; Kari & Baro, 2014; Ujoumunna et al., 2021; Uzomba et al., 2015; Sambe et al., 2015). Thus, librarians' knowledge of library software management is critical in knowing suitable type for the library routine functions and users' needs in terms of the most cost-effective one to subscribe to, how to select the vendor, subscribe for the selected software, install it in the system as well as how to update it in line with changing technological needs. It helps in practically knowing the right library software to select and use as a critical factor for successful and sustainable library automation and provision of electronic information services to library users in the university libraries.

Librarians' metadata management skills

Metadata management skills is another essential element for successful implementation of library automation and electronic information services provision in university libraries. According to Oyighan et al. (2024), metadata is often referred to as data about data, showing descriptive or bibliographic details about a particular information material such as author, title, publication date, and subject matter of the information resources for cataloguing, discovery, and resource management. Metadata plays a crucial role in library system by providing structure, organization, and accessibility to information resources. It enables libraries and librarians to manage, categorize, and retrieve vast amounts of information effectively. Traditionally, libraries have relied on standardized metadata systems like MARC (Machine-Readable Cataloguing) and Dublin Core to ensure consistency and interoperability across institutions (Tella et al., 2023). These frameworks have long been the foundation of efficient library operations, supporting librarians and users in navigating complex collections of physical and digital resources. Metadata management is a necessary process for library operations, enabling the organization, retrieval and preservation of digital resources in libraries (Hussaini et al., 2025). Thus, metadata management skills constitute the fundamental

competencies for successful library automation and electronic information services provision in university libraries. As a matter of fact, the increasing volume of digital content, ranging from e-books and online journals to multimedia resources has required librarians to rethink and improve their skills in order to be able to manage and organize the vast amount of information in the automated library system (Cox, 2023). This implies that librarians with strong metadata management skills have become very crucial for successful library automation and effective provision of electronic information services in university libraries. Metadata management skills enable librarians to create rich, searchable descriptions of electronic resources for improved discoverability, access and use of information by users. Metadata management skills involve the ability to identify authors' name, title, publication date and subject matter in electronic information resources for successful library automation. It is essential for supporting librarians in their responsibilities of enhancing the attainment of the teaching, learning, and research objectives of their university libraries.

Moreover, Hussaini et al. (2025) investigated the use of cloud maintenance practices for metadata management in federal university libraries in North-Central States of Nigeria. The revealed that the adoption of advanced practices such as encryption, automated performance monitoring, and disaster recovery strategies, significantly enhance metadata reliability and security. It showed that the foundational practices like standardized metadata schemas and frequent backups were less consistently implemented, indicating gaps in a holistic cloud strategy. The study identified key challenges, including inadequate IT infrastructure, insufficient funding, and lack of skilled personnel as hindrances to the effective adoption and sustainability of metadata management and cloud maintenance practices in federal university libraries. It reported that these barriers were compounded by issues of poor internet connectivity and resistance to technology adoption. The study recommended targeted investments in IT infrastructure, staff training, and secure funding mechanisms in order to achieve more effective metadata management for ensured service delivery in federal university libraries. Gushit et al. (2024) examined the influence of library automation on effective service delivery by library staff in universities in Makurdi, Benue State, Nigeria. The study revealed that automation of library significantly influences cataloguing and circulation for effective service delivery by library staff in universities in Benue State. It identified poor librarians' skills, inadequate financial resources and lack of institutional support as the major challenges to successful implementation and maintenance of library automation systems. It recommended that institutions should organize regular training sessions and workshops to enhance the technical competencies of library staff in utilizing library automation software.

Ovie and Emumejakpor (2023) investigated librarians' digital skills and management of electronic resources in federal university libraries in South-South Nigeria. The study revealed that librarians in federal university libraries in South-south, Nigeria, possess various digital skills, and that the extent of possession of digital skills possessed by the librarians is very high. It showed that there is a significant relationship between librarians' digital skills and effective management of electronic resources in university libraries. The study recommended that university library management should continue their effort to train and retrain their staff to acquire more digital skills knowing that technology is dynamic and new technologies

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demand new skills. It also recommended that librarians should strive to personally develop and improve on their digital skills set especially in the areas where they have deficiencies such as the area of skills needed to create different file formats like PDF, etc. Similarly, Hussain and Ameen (2023) explored the status, problems and implications of automation landscape in university libraries of Khyber Pakhtunkhwa, Pakistan. The study discovered that most libraries in Khyber Pakhtunkhwa were only partially automated, with a significant number in the initial stages of automation. The analysis of various library services and operations indicated a predominant reliance on manual approaches across most functions, with cataloguing being the only service showing some level of automation. It revealed that the most frequently employed software for automation was Koha, followed by LIMS and SLIMS. The study revealed that automation saves time, improves information searching, as well as efficiency and quick access to materials. It identified limited resources, power supply interruptions, and inadequate IT infrastructure as the problems facing automation in the libraries. It recommended informed decision-making processes and guided efforts to improve automation practices, resource allocation and training opportunities to enhance library services and operations.

Another study was also conducted on the status and perceived impact of automation on university library services by library personnel in South West, Nigeria by Ajani and Buraimo (2021). The study, which adopted a descriptive research design, discovered that library automation in university libraries in South West Nigeria was partial. It showed that library automation has a positive impact on library services but the full realization of the impact was hampered by lack of technical support from the vendor, lack of funding, attitude of library personnel and technophobia. Nwachukwu (2022) equally examined the competency needs of librarians in the management of automated libraries in Nigeria, which showed that librarians need competencies in areas such as information technology, digital literacy, and information literacy to effectively manage automated libraries. The study recommended that librarians should be trained in these areas to improve their performance. In another study by Ogunniyi (2020), competency needs of librarians in the management of automated libraries in South Africa was conducted. The study showed that librarians need competencies in database management, digital library management, and information literacy to effectively manage automated libraries. It recommended that librarians should be trained to improve their performance.

In the same vein, Igbudu et al. (2020) studied the influence of library automation using Koha software for library services in public university libraries in North Central Nigeria. The study discovered that Koha software packages have significant effect on acquisition, cataloguing and classification operations in public university libraries in North Central Nigeria. The effect of library automation services on the utilisation of information resources in Bingham University library was also studied by Okeaghalam et al. (2020). The study discovered that majority of the library users were not aware of many of the library automation services, which led to underutilisation of these services and low satisfaction. The study also revealed that ignorance of the existence of library automation services, inadequate searching skills of the users, inefficient computer systems, inaccessibility of the library website, non-functional computer systems, epileptic Wi-Fi signal, and irregular power supply contributed to

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underutilisation and low satisfaction of the automation services of the library. It recommended that the library should embark on massive awareness programs, while library staff should be trained on how to market and encourage the students to use these automation services for better users' level of satisfaction. Dolapo and Adeniyi (2019) also explored the effect of library automation on the performance of librarians in private universities in South-West, Nigeria. The study adopted a survey research design, and revealed that out of the six library services identified in the study, five were fully automated and 90% of the private university libraries have automated their services. It showed that librarians' performance has increased significantly as a result of library automation in the private universities in South West Nigeria. The concluded that there was significant and positive relationship between library automation and librarians' performance in university libraries. Another study was conducted on competency needs of librarians in the management of automated libraries in Ghana was also conducted by Ojo (2015). The study showed that librarians need competencies in areas such as information technology, digital literacy, and information literacy to effectively manage automated libraries. It recommended that librarians should be trained in order to improve their competencies in various digital literacy areas for enhanced performance in the libraries.

From the above reviewed studies, it was observed that researchers and scholars dwelt more on the effect or impact of library automation on services delivery without serious research attention on the skills or competencies of librarians for implementing, managing and sustaining library automation. Therefore, this present study was conducted to fill the observed knowledge gap by examining librarians' competencies for library automation as determinant of electronic information resources provision in federal university libraries in South-East, Nigeria.

Methodology

This study adopted a correlational research design. The population of the study consisted of two hundred and eleven (211) academic and non-academic librarians from three (3) federal university libraries in Abia, Enugu and Imo States. The federal university libraries include Michael Okpara University of Agriculture, Umudike (MOUAU) library, Abia State; University of Nigeria, Nsukka (UNN) library, Enugu State; and Federal University of Technology, Owerri (FUTO) library, Imo State. The population comprises one hundred and twenty-seven (127) academic and eighty-four (84) non-academic librarians. This population focuses on those with a minimum of first degree in Library Science (BLS) or Library and Information Science (B.LIS), based on the assumption that they are familiar with library automation and electronic information services and their implications on teaching, learning and research objectives of the of the modern universities. The proportionate stratified random sampling technique was used to select 107 academic and non-academic librarians, representing 51% of the study population. The population distribution and sample size were further represented in the Table 1 below:

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Table 1: Population Distribution and Sample Size

S/N	Institutions	Population			Sample Size		
		Academic librarians	Non-Academic Librarians	Total	Academic librarians	Non-Academic Librarians	Total
1	MOUAU	26	17	43	13	9	22
2	UNN	53	53	106	27	27	54
3	FUTO	48	14	62	24	7	31
	Sub-Total	**127**	**84**	**211**	**64**	**43**	**107**

A two set of self-structured questionnaire designed with closed-ended questions on a 4-point rating scale were used for data collection. The questionnaire that elicited information on the independent variable was titled, "Librarians' Competencies for Library Automation Questionnaire (LCLAQ), while the correlating questionnaire was entitled, "Electronic Information Services Provision Questionnaire (EISPQ)." LCLAQ contains a total of twenty-two (22) items under three (3) clusters in line with the specific objectives while the correlating questionnaire (EISPQ) contains ten (10) items in a single cluster. The two sets of the questionnaire were validated for appropriateness and suitability, and pretested for reliability using 10 academic and non-academic librarians each from the University of Uyo (UNIUYO) and Akwa Ibom State University (AKSU) libraries. Their responses were analysed using Cronbach Alpha formula, which yielded a cumulative reliability coefficient index of 0.86, indicating the individual reliability coefficient indices of 0.89 and 0.83 for LCLAQ and EISPQ, respectively. For the data collection, 107 copies of the questionnaires were distributed to the respondents by the researcher and a research assistant recruited from the respective university libraries for the purpose of this study. Out of the 107 copies of the questionnaires distributed, a total of 96 copies, representing 89.72 % (approximated to 90%) response rate were validly completed and retrieved for the study. The data were analysed using Pearson Products Moment Correlation (PPMC) to determine the correlation coefficient of the relationship between librarians' competencies for library automation and electronic information services provision in federal university libraries in South-East, Nigeria. The degree of the relationship between the variables was determined and interpreted using Creswell's (2014) correlation coefficient scale of (r) ±0.00 - 0.20 = very low relationship; ±0.21 - 0.40 = low relationship; ±0.41 - 0.60 = moderate relationship; ±0.61 - 0.80 = high relationship, and ±0.81 - 1.00 = very high relationship. The corresponding null hypotheses were tested using simple linear regression at 0.05 level of significance, with a decision rule suggesting the rejection of the null hypothesis if the P-value is less than the Alpha value at 0.05 level of significance or otherwise, accepting the null hypothesis.

Results of the Study

The results of the study were presented in according with the specific objectives and corresponding hypotheses below:

Research Objectives 1: To examine the relationship librarians' project management skills and electronic information services provision in federal university libraries in South-East, Nigeria.

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Table 2: Correlation coefficient of librarians' project management skills and electronic information services provision in federal university libraries in South-East, Nigeria.

		Librarians' Project Management Skills	**Electronic Information Services Provision**
Librarians' Project Management Skills	Pearson's Correlation Sig. (2tailed)	1	0.294
	N	96	96
Electronic Information Services Provision	Pearson's Correlation Sig. (2tailed)	0.294	1
	R^2	0.086 (86%)	
	N	**96**	**96**

N = Number of Observations
R = Correlation Coefficient
R^2 = Coefficient of Determination

Data in Table 2 shows a low degree of relationship between librarians' project management skills and electronic information services provision in federal university libraries in South-East, Nigeria, as indicated by the correlation coefficient (r) of 0.294, which is positive and falls within the correlation coefficient range of ±0.21 - 0.40. The coefficient of determination (r^2) of 0.086 reveals that 86% of the variance observed in electronic information services provision in federal university libraries in South-East, Nigeria, could be accounted for by librarians' project management skills. The result implies that librarians' project management skills to a low extent but positively correlate with electronic information services provision in federal university libraries in South-East, Nigeria. This result was validated by the test of hypothesis 1 as indicated in Table 3 below.

Hypothesis 1: There is no significant relationship between librarians' project management skills and electronic information services provision in federal university libraries in South-East, Nigeria.

Table 3: Simple regression analysis of the relationship between librarians' project management skills and electronic information services provision in federal university libraries in South-East, Nigeria

Model	***Df***	***Sum of Square***	***Mean Square***	***F***	***Sig.***
Regression	1	51.495	51.495	8.902	0.004[b]
Residual	94	543.745	5.785		
Total	95	595.240			

The data in Table 3 above shows a P-value of 0.004 which is less than the Alpha value of 0.05. Since the P-value of 0.004 is less than the Alpha value of 0.05, the hypothesis of no

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significant relationship was rejected and the alternate upheld. Thus, there is a significant relationship between librarians' project management skills and electronic information services provision in federal university libraries in South-East, Nigeria.

Research Objective 2: To assess the relationship between librarians' knowledge of library software management and electronic information services provision in federal university libraries in South-East, Nigeria.

Table 4: Correlation coefficient of librarians' knowledge of library software management and electronic information services provision in federal university libraries in South-East, Nigeria.

		Librarians' Knowledge of Library Software Management	**Electronic Information Services Provision**
Librarians' Knowledge of Library Software Management	Pearson's Correlation Sig. (2tailed)	1	0.559
	N	96	96
Electronic Information Services Provision	Pearson's Correlation Sig. (2tailed)	0.559	1
	R^2	0.312 (31.2%)	
	N	**96**	**96**

N = Number of Observations
R = Correlation Coefficient
R^2 = Coefficient of Determination

Data in Table 4 indicates a moderate degree of relationship between librarians' knowledge of library software management and electronic information services provision in federal university libraries in South-East, Nigeria, as indicated by the correlation coefficient (r) of 0.294, which is positive and falls within the correlation coefficient range of ±0.41 - 0.60. The coefficient of determination (r^2) of 0.312, which shows that 31.2% of the variance observed in electronic information services provision in federal university libraries in South-East, Nigeria, could be accounted for by librarians' knowledge of library software management. The result implies that librarians' knowledge library software management to a moderate degree but positively correlate with electronic information services provision in federal university libraries in South-East, Nigeria. This result was validated by the test of hypothesis 1 as indicated in Table 5 below.

Hypothesis 2: There is no significant relationship between librarians' knowledge of library software management and electronic information services provision in federal university libraries in South-East, Nigeria.

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Table 5: Simple regression analysis of the relationship between librarians' knowledge of library software management and electronic information services provision in federal university libraries in South-East, Nigeria.

Model	*Df*	*Sum of Square*	*Mean Square*	*F*	*Sig.*
Regression	1	173.738	173.738	42.893	0.030[b]
Residual	94	380.751	4.051		
Total	95	554.490			

Data in Table 5 above shows a P-value of 0.030 which is less than the Alpha value of 0.05. Since the P-value of 0.030 less than the Alpha value of 0.05, the hypothesis of no significant relationship was rejected and the alternate upheld. Therefore, there is a significant relationship between librarians' knowledge of library software management and electronic information services provision in federal university libraries in South-East, Nigeria.

Research Objective 3: To determine the relationship between librarians' metadata management skills and electronic information services provision in federal university libraries in South-East, Nigeria.

Table 6: Correlation coefficient of librarians' metadata management skills and electronic information services provision in federal university libraries in South-East, Nigeria**.**

			Librarians' Metadata Management Skills	**Electronic Information Services Provision**
Librarians' Metadata Management Skills	Pearson's Correlation	Sig. (2tailed)	1	0.281
	N		96	96
Electronic Information Services Provision	Pearson's Correlation	Sig. (2tailed)	0.281	1
	R^2		0.079 (79%)	
	N		**96**	**96**

N = Number of Observations
R = Correlation Coefficient
R^2 = Coefficient of Determination

Data in Table 6 reveals a low degree of relationship between librarians' metadata management skills and electronic information services provision in federal university libraries in South-East, Nigeria, as indicated by a correlation coefficient (r) of 0.281, which is positive and falls within the correlation coefficient range of ±0.20 - 0.40. The coefficient of determination (r^2) of 0.079, which shows that 79% of the variance observed in electronic information services provision in federal university libraries in South-East, Nigeria, could be accounted for by

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librarians' metadate management skills. The result implies that librarians' metadata management skills to a very high extent positively correlates with electronic information services provision in federal university libraries in South-East, Nigeria. This result was validated by the test of hypothesis 1 as indicated in Table 7 below.

Hypotheses 3: There is no significant relationship between librarians' metadata management skills and electronic information services provision in federal university libraries in South-East, Nigeria.

Table 7: Simple regression analysis of the relationship between librarians' metadata management skills and electronic information services provision in federal university libraries in South-East, Nigeria.

Model	*Df*	*Sum of Square*	*Mean Square*	*F*	*Sig.*
Regression	1	21.530	21.530	7.981	0.006
Residual	94	250.891	2.698		
Total	95	272.421			

Data in Table 7 shows a P-value of 0.006 which is less than the Alpha value of 0.05. Since the P-value of 0.006 less than the Alpha value of 0.05, the hypothesis of no significant relationship was rejected and the alternate upheld. Therefore, there is a significant relationship between librarians' metadata management skills and electronic information services provision in federal university libraries in South-East, Nigeria.

Discussion of the Findings

The findings of the study were discussed in line with the specific objectives and existing studies as follows:

The finding of the study revealed that there is a significant relationship between librarians' project management skills and electronic information services provision in federal university libraries in South-East, Nigeria. It implies that librarians' project management skills as essential elements of determining successful library automation by initiating, planning, budgeting for, and monitoring progress can positively influence electronic information services provision in federal university libraries. This finding aligns with George and Tom-George (2024), which revealed that project management skills are critical in the execution of library automation, helping in deciding software systems, digital collections, and technology upgrades. It equally agrees with Ovie and Emumejakpor (2023), who discovered that there is a significant relationship between librarians' digital skills and effective management of electronic resources in university libraries.

The finding of the study showed that there is a significant relationship between librarians' knowledge of library software management and electronic information services provision in federal university libraries in South-East, Nigeria. This indicates that librarians' knowledge of library software such as ability to decide the most suitable library software like CDS/ISIS, Greenstone, KOHA, Fedora, E-Print, DSPACE, SLAM, SLIM, ALICE, etc.; decide reliable vendor; subscribe to the library software; install the software and regularly update the software in line with changing needs of the library are critical to effective implementation of

library automation and electronic information services provision in federal university libraries. This finding corroborates with Igbudu et al. (2020), who discovered that library software such as Koha has a significant effect on acquisition, cataloguing and classification operations in public university libraries. The finding of this also partially agrees with Gushit et al. (2024), who revealed that automation of library significantly influences cataloguing and circulation for effective service delivery by library staff in universities but the implementation of library automation in university libraries is hampered by poor skilled librarians. It further aligns with Hussain and Ameen (2023), who explored the status, problems and implications of automation landscape in university libraries of Khyber Pakhtunkhwa, Pakistan, and reported that the most frequently employed software for automation was Koha, but that most libraries in Khyber Pakhtunkhwa were only partially automated, with a significant number in the initial stages of automation.

The finding of the study revealed that there is a significant relationship between librarians' metadata management skills and electronic information services provision in federal university libraries in South-East, Nigeria. This indicates that librarians' metadata management skills such as the ability to create searchable descriptions such as authors' name, title, publication date, subject matter, etc., for electronic resources are crucial for effective implementation of library automation and electronic information services provision in federal university libraries. This finding is in line with Hussaini et al. (2025), who revealed that the adoption of advanced practices such as encryption, automated performance monitoring, and disaster recovery strategies, significantly enhance metadata reliability for library automation and online information services provision in university libraries. The finding of this study further gives credence to Ogunniyi (2020), as well as Nwachukwu (2022), which reported that librarians need competencies in database management, digital library management, and information literacy to effectively manage automated libraries for enhanced electronic information services provision.

Conclusion

Library automation is a propelling requirement for effective electronic information services delivery in federal university libraries. This implies that successful and effectively implemented library automation largely depends on the level of librarians' competencies, knowledge and skills in the various aspects of the process. As a matter of fact, it is observed in this study that no matter the level of investment on facilities for library automation in the Nigerian federal university libraries, the practical impacts of such investment may not be seen unless librarians are well-knowledgeable and competent in handling and managing the automated library systems. In this study, it was discovered that librarians' project management skills, librarians' knowledge of library software management and librarians' metadata management skills have significant relationship with electronic information services provision in federal university libraries in South-East, Nigeria. This implies that necessary training programmes are required by librarians while relevant information and communication technology (ICT) facilities such as internet services, suitable library software, constant power supply, etc., are to be prioritized by management of federal university libraries in Nigeria. When this is done, electronic information services will be effectively provided

through the automated libraries systems to the various categories of library users for the enhanced teaching, learning, research and community services in the federal universities.

Recommendations

Based on the findings of this study, the following recommendations were put forward:

i. Management of federal university libraries should prioritize the training and retraining of librarians on library automation processes in order to enable them implement library automation for effective electronic information services provision.
ii. Management of federal universities should provide relevant facilities such as constant power supply, internet access, library management system and other requisite facilitates to enable librarians provide electronic information services to the teeming library users.
iii. Librarians in federal university libraries should develop interest in acquiring new skills and competencies through self-learning and collaboration with skilled-counterparts on library automation and electronic information services.

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