

An Empirical Assessment of Cloud Computing Adoption in University Libraries in Niger State, Nigeria

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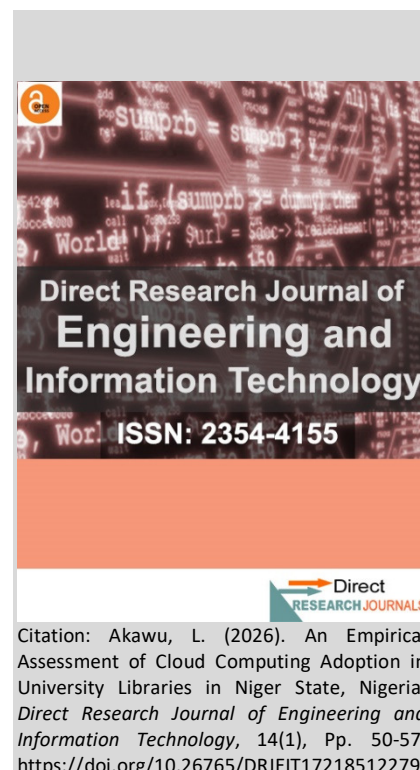
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ABSTRACT

Cloud computing has emerged as a transformative force in libraries, offering scalable, on-demand access to digital resources and enabling operational efficiency. The study examined the adoption of cloud computing for service delivery in academic libraries in Niger State. Three objectives were formulated to guide the study. The study adopted descriptive survey design and structured questionnaire was used to collect data for the study. Data collected was analyzed and presented in tables, frequencies, percentage and mean. The results of the findings revealed high level of agreement on cloud computing improves access to library materials from anywhere (4.39), allows remote and convenient access to services (4.36) and enhances speed and efficiency of service delivery (4.34). However, the finding also identified challenges affecting adoption of cloud computing which included poor internet connectivity, financial constraints and erratic power supply. The study concluded that cloud computing offers substantial benefits in enhancing library services, however, its success in adoption depends on addressing internet connectivity, financial, erratic power supply and other challenges identified.

Keywords: Academic Libraries, Cloud Computing, Cloud Adoption, Niger State, University Libraries, Nigeria



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INTRODUCTION

Academic libraries have traditionally played a central role in supporting teaching, learning and research objectives of their parent institutions. Over the years, library services have evolved from manual operations and print-based collections to automated systems and digital resources. With the rapid advancement of information and communication technology, academic libraries are

increasingly integrating innovative technologies to enhance service delivery, improve access to information resources and remain relevant in the digital age (Ergul & Akgul, 2023). The term cloud computing refers to the delivery of computing services which include storage, servers, databases, networking, and software over the internet (the cloud) (Ergul & Akgul, 2023, Lele, 2018).

According to Azam (2019), cloud computing is an on-demand access to virtualized Information Technology (IT) resources that are housed outside of clientele data center and shared with minimal management effort. Integrated library management systems that required substantial local infrastructure are being replaced by cloud-based library management system. Library service providers such as OCLC and Ex Libris now offer cloud-based platforms that enable libraries to manage their functions effectively and efficiently. So, as hub of scholarly communication and knowledge dissemination, academic libraries have taken advantage of cloud-based technology to manage their collections, facilitate collaboration and enhance user access to information. Despite its numerous advantages, the implementation of cloud computing in academic libraries remain a challenge.

The rapid advancement of information and communication technology has transformed library operations and services. Academic libraries are expected to provide seamless, remote and timely access to information resources. However, academic libraries still rely on the traditional locally hosted library management software. The growing demand for digital resources, institutional repository, e-learning platforms and collaborative research tools has placed additional pressure on academic libraries to embrace cloud computing. While cloud computing offers cost effective and scalable solution, its adoption still remains very slow and not well documented. Concerns relating to data security, privacy, unreliable internet connectivity, inadequate funds and technical skills pose challenge to effective implementation. These challenges create a gap between the potential benefits of cloud computing and its effective adoption in academic libraries. This calls for empirical research to examine the adoption of cloud computing in some selected university libraries in North Central, Nigeria.

Objectives of the study

The objectives include

1. To identify the types of cloud computing model used for service delivery in academic libraries
2. To examine the benefits of cloud computing for service delivery in academic libraries
3. To identify the challenges affecting the adoption of cloud computing for service delivery in academic libraries

Research Questions

Research Question 1: What are the types of cloud computing models used for service delivery in academic libraries in Niger State?

Research Question 2: What are the benefits of using cloud computing for service delivery in academic libraries?

Research question 3: What are the challenges affecting the adoption of cloud computing for service delivery in academic libraries?

LITERATURE REVIEW

Concept of Cloud computing

Cloud defines information technology that offers remote access to any work-related data. Cloud computing occurs when information resources are stored remotely, away from physical Information Technology tools, and accessed through the Internet. A system that uses virtual servers as infrastructure and makes them accessible to third parties through the internet is cloud computing. Okike and Omali (2023) view cloud computing as a platform used for delivery of application software through internet instead of installing and running the same on a user's computer. According to Krishnamurthy and Soubhagya (2019), cloud computing as a model for delivering information technology services in which resources are retrieved from the internet through web-based tools and applications, rather than a direct connection to a server. Thus, cloud computing is a network computing model that relies on distributed systems to deliver computing services on-demand. Wada (2018) and Sivankalai (2021) further explained that cloud computing is an internet based, remote driven and service-oriented technology that emerged to provide infrastructure as a service (IaaS), platform as a service (PaaS) and software as a service (SaaS). By leveraging cloud computing, libraries are able to store and access vast amounts of data without the need for physical infrastructures. Mabawonku et-al. (2024) noted that this technology has provided numerous benefits in terms of accessibility, scalability, cost-effectiveness, and information sharing.

Cloud Computing Service and Deployment Applications for Services Delivery in academic library

Cloud computing has fundamentally reshaped the landscape of information technology by transitioning from product-based to service-oriented solutions. This transformative technology leverages the internet to facilitate the transfer of computer storage and processing to remote servers. The backbone of this infrastructure comprises of robust data centers, which offers a scalable storage capacities and a suite of applications as services to end-users and is made feasible by web 2.0 technologies (Demissie & Dahiru, 2017). Infrastructure as a service (IaaS), Platform as a service (PaaS), Software as a service (SaaS), and Hybrid cloud are cloud applications models adopted for service delivery. Rittinghouse and Ransome (2016) and Stergiou et al. (2018) highlighted the key players in technology industry that offer robust cloud platforms and empower users to streamline their

operations which includes Amazon Web Services, Microsoft Azure, Digital Ocean, and Google Cloud Platform.

The platforms incorporate various cloud infrastructures such as hybrid model which combine private and public cloud model services to provide organizations and businesses with data and storage solutions. In the library context, hybrid clouds are adopted when data sensitivity, compliance, or institutional policy require local control over some functions while leveraging cloud services for others functions (Isiaka et-al., 2024). Services such as PaaS can be used to provide developmental environment for building, testing and customizing applications over the cloud (Karthika and Dominis, 2025). PaaS also allows development and management of specialized library application. Isiaka et-al. (2024) opined that IaaS provides virtual servers, storage and networking infrastructure through cloud providers, allowing libraries to avoid purchasing physical hardware. Academic libraries can use this platform to host institutional repositories, digital achieves and research management systems. IaaS allows libraries to scale storage capacity without investing in physical servers.

IaaS also support disaster recovery enhance digital preservation, ensuring redundancy and secure backups of digital collections and multimedia resources (Karthika and Dominis, 2025). The most important application of cloud computing today is Google Docs (Karthika and Dominis, 2025) due to its capability to collaborate. Users can utilize this platform to collaborate on documents seamlessly, transcending geographical limitations. SaaS is use to deliver applications such as integrated library system over the internet this eliminate the need for local installation and maintenance of systems. Library based platform are provided by OCLC and Ex Libris. They are used for cataloging, acquisition, circulation and electronic resource management (Karthika and Dominis, 2025). SaaS enhances operational efficiency, support automated system and improves remote access to digital resources (Karthika and Dominis, 2025). SaaS-based systems facilitate collaborative cataloguing and centralized management of library functions and services, as well as improve service delivery. Summarily, cloud comping models enhance accessibility, scalability and operational efficiency in academic libraries, though adoption of models varies depending on the institutional capability and financial resource.

Cloud Computing and Benefits of the Use of Cloud Computing in Academic Libraries

The integration of cloud computing into academic libraries represents a transformative shift in the management, preservation, and dissemination of scholarly information. As knowledge-intensive institutions, academic libraries have historically adapted emerging technologies to enhance service delivery, optimize resource utilization, and support institutional teaching and research mandates.

In the contemporary digital ecosystem, cloud computing has emerged as a strategic infrastructure that enables libraries to transcend traditional operational constraints, foster collaborative scholarship, and ensure sustainable information stewardship. Cloud computing, broadly defined as the on-demand delivery of computing resources including storage, processing power, and software applications over the internet, provides scalable and flexible solutions tailored to the dynamic needs of academic environments. Within libraries, cloud-based platforms function as distributed knowledge repositories that facilitate real-time collaboration among librarians, faculty, researchers, and students. These environments support document sharing, collaborative cataloguing, metadata enrichment, and scholarly communication, thereby strengthening the research lifecycle and enhancing academic productivity. As Borgman, Scharnhorst, and Golshan (2019) note, cloud-enabled infrastructures expand access to digital resources beyond institutional and geographical boundaries, fostering inclusivity and democratization of knowledge.

One of the most significant contributions of cloud computing to academic libraries lies in its capacity to enhance accessibility and availability of information resources. Cloud-based systems enable users to access library collections remotely, irrespective of physical location or institutional affiliation. This capability is particularly vital in the context of distance education, cross-institutional research partnerships, and global scholarly networks. Platforms such as Google Drive, Microsoft OneDrive, and cloud-hosted integrated library systems (ILS) support seamless sharing of research outputs, bibliographic records, and digital collections (Krishnamurthy & Arali, 2019). Consequently, cloud adoption broadens the functional reach of academic libraries, positioning them as digitally networked hubs within the global knowledge economy.

Beyond accessibility, cloud computing significantly strengthens digital resource management and preservation strategies. The exponential growth of born-digital materials, multimedia artifacts, research datasets, and electronic publications necessitates robust storage architectures capable of ensuring long-term preservation and integrity. Digital technologies integrated within cloud environments enable streamlined management of non-print resources, improved metadata standards, and implementation of redundancy mechanisms to mitigate data loss or degradation (Nwankwo, 2023). By leveraging distributed storage models and automated backup systems, academic libraries can safeguard scholarly assets for present and future generations.

Despite its demonstrable advantages, empirical evidence suggests that the adoption of cloud computing in academic libraries remains uneven. Masenya (2020) observes that although cloud technologies offer substantial benefits for preservation and accessibility, many academic libraries particularly in developing contexts face structural constraints such as inadequate

ICT infrastructure, limited technical expertise, and absence of comprehensive digital preservation policies. Similarly, Yakubu et al. (2023), in developing a hybrid adoption model for academic libraries in North-Eastern Nigeria, identified critical determinants influencing cloud uptake, including perceived service quality, cost reduction potential, IT competency, and perceived behavioral control. These findings underscore that technological adoption is not merely a technical decision but is shaped by organizational readiness, human capital, and contextual factors.

From an economic perspective, cloud computing offers substantial cost-efficiency advantages. Traditional on-premises server infrastructures require significant capital investment, continuous hardware upgrades, energy consumption, and specialized maintenance personnel. By contrast, cloud-based models operate on subscription or pay-as-you-go frameworks, enabling libraries to convert capital expenditures into predictable operational costs. Indrajai and Satishkumar (2025) argue that cloud adoption reduces long-term IT expenditures by eliminating the need for frequent hardware replacement and system upgrades. Isiaka et al. (2024) similarly contend that outsourcing data storage and infrastructure management to third-party providers minimizes maintenance burdens and optimizes resource allocation. Furthermore, scalable cloud storage solutions such as Google Cloud and Amazon Web Services (AWS) allow libraries to accommodate expanding digital collections without the spatial and financial constraints associated with physical data centers (Swaminathan, 2020). Scalability constitutes another critical advantage. Academic libraries manage increasingly large volumes of research data, multimedia content, electronic books, and scholarly journals. Cloud infrastructures enable elastic storage capacity that can expand or contract in response to institutional demand. This elasticity ensures continuity of service during peak usage periods while maintaining operational efficiency during lower-demand intervals. Consequently, cloud computing enhances institutional resilience and supports the evolving data-intensive nature of contemporary scholarship. Notwithstanding these benefits, concerns relating to data security, privacy, and regulatory compliance persist. Academic libraries often handle sensitive research data, intellectual property, and user information. Reliance on third-party providers introduces potential risks associated with data breaches, vendor lock-in, jurisdictional data governance, and compliance with national and international data protection frameworks. Therefore, strategic cloud adoption requires comprehensive risk assessment, robust contractual agreements, encryption protocols, and alignment with institutional information governance policies.

Challenges of Adopting Cloud Computing in Academic Libraries

The implementation of cloud computing in academic

libraries offers scalable, cost-effective solutions for managing digital collections and services. However, implementing cloud computing in academic libraries presents challenges which are likely to impede successful implementation, Ojobor (2024) asserted that Erratic power supply can hinder the implementation of cloud technologies in libraries. As Information and Communication Technology (ICT) dependent entities, libraries have been among the most affected institutions, hence Bangani (2024) points to the disruption caused by erratic power supply in academic libraries. Cloud computing relies entirely on constant, high-speed internet and powered devices, power failure disrupts the entire service, thereby denying library users their right to access information. Conducted a survey on erratic power supply in federal university libraries in Nigeria. The result showed that electric power supply hinders the application of cloud computing services among others. Unstable electricity does not only affect cloud access but also impacts the reliability and responsiveness of electronic resource delivery.

Adoption stage and ongoing use of cloud computing in academic libraries can also be affected. Libraries seeking to migrate systems to cloud services required continuous power supply to maintain connectivity with remote servers. When the frequency of service is interrupted increases, users compromise their experience and confidence is reduced in the cloud solution (Ojobor, 2024). Implying that infrastructural instability can reduce trust and lead to lower or no adoption. Yakubu 2023 asserted that without consistent power supply, cloud platforms cannot be leveraged for library service delivery. In addition, irregular power contributes to hardware failure and reduced equipment lifespan.

Reliable internet connectivity is recognized as a critical enabler for cloud computing adoption because cloud services depend on timely access to remote servers, data synchronization and interrupted network communication. Golightly et al. (2022) posited that, to function effectively, cloud-based applications require robust and reliable internet connections. However, poor internet connectivity has been identified as a constraint on cloud computing implementation. A study was carried out by Kayode et al. (2025) on cloud computing integration in academic library ecosystem, identify poor internet connectivity as one of the challenges encountered when implementing cloud computing to take advantage for operational effectiveness. When bandwidth is insufficient, libraries may experience slow service speeds, reduced access to digital resources, and impaired ability to offer new technologies that require high-speed internet, such as streaming media or large-scale data analysis. In his words, Alabi et al. (2024) explained that low internet bandwidth could lead to digital divide, where libraries in areas with low bandwidth cannot provide good level of service as those with better infrastructure.

Kayode et al. (2025) posited that data security is a critical concern for librarians considering cloud adoption.

Kayode et al. (2025) further explained that the outsourcing of data storage and management to third-party cloud providers raises questions about data privacy, confidentiality and compliance with regulatory requirements. Librarians must address these concerns by implementing robust security measures, conduct thorough risk assessments, and establish data governance policies. Since cloud data is vulnerable to malware assault, theft, data loss, when system breakdown, improper backup or other form of risk, cloud providers can offer robust backup and disaster recovery solutions.

Financial constraints remain one of the hindrances to the adoption and implementation of cloud computing in Nigerian academic libraries. Academic Libraries are essential for providing access to a vast range of information resources, Isiaka et al (2024) assessed the adoption of cloud technologies in selected university libraries in Kwara state. The result of the finding showed that libraries were poorly funded. The initial costs of implementing cloud solutions can be substantial. Without adequate funding, libraries would struggle to acquire necessary infrastructure which include servers, workstations, and subscriptions to cloud services. Alabi et-al. (2024) asserted that budget limitations can hinder the ability of libraries to keep up with technological advancements, resulting to outdated systems that compromise the quality of service and user experience. On the contrary, limited budgets prevent libraries from investing in robust cloud infrastructure. As such, cannot migrate from automated system to cloud platforms. The inability of academic libraries to invest in cloud technologies can limit the library's capacity to provide diverse digital resources, which is crucial for supporting current research and learning opportunities.

Poor technical infrastructure can hinder the implementation of cloud technologies in libraries. Libraries with outdated or inadequate technical setups may struggle with the internet bandwidth and hardware requirements for cloud-based services. This slows the system performance, reduced reliability, and frequent downtimes, negatively impacting user experience and service delivery Valisherrovna (2024). Lack of skilled personnel to manage and troubleshoot advanced cloud technologies can impair these issues, leading to underutilization of cloud capabilities. In regions with limited technical know-how and budgetary allocations for internet access and network tools, academic libraries are faced with challenges to maintain a consistent and secure cloud presence, which is crucial for protecting sensitive data and ensuring seamless access to digital resources.

Implementing cloud technologies in libraries requires a blend of technical skills and strategic planning. Insufficient experienced personnel and skilled/ technical expertise, affect the implementation, management and effective utilization of system. Valisherrovna (2024) emphasized that librarians must possess technical, organizational, and interpersonal competencies to harness cloud technologies effectively.

The absence of such competencies can limit the use of cloud systems. Furthermore, lack of expertise can lead to inadequate understanding of cloud security and privacy issues, potentially exposing sensitive user data to risks. Similarly, lack of experienced personnel can hinder the library's ability to leverage cloud technologies to improve service delivery, streamline operations, and expand access to digital resources. Ultimately, implementing cloud technologies in libraries depend on the technology and the people who would manage and utilize it.

METHODOLOGY

The study adopted descriptive survey design. The area of the study was university libraries in Niger State, Nigeria. The population of the study was 115 librarians from six university libraries, namely, Federal University of Technology, Minna, Ibrahim Badamasi Babangida University, Lapai, Abdulkadir Kure University, Minna, New Gate University, Minna, Federal University of Education, Kontagora and El ami International University, Minna. Table 1 presents the population for the study. Since the population was manageable, the researcher adopted the entire population for the study. Data were collected through questionnaire and presented in tables and analyzed with the use of descriptive statistics such as frequencies, percentage and mean.

Table 1: Distribution of the Population for the Study

University Libraries	Number of Librarians
Federal University of Technology, Minna	42
Federal University of Education, Kontagora	27
Ibrahim Badamasi Babangida University, Lapai,	39
Abdulkadir Kure University, Minna	19
El ami International University	8
New Gate University, Minna,	16
Total	150

Source: Administrative section of the respective libraries, 2026

RESULTS AND DISCUSSION

Research Question 1: What are the types of cloud computing models used for service delivery in academic libraries in Niger State?

Table 2 presents the responses of the respondents on cloud computing models used for service delivery. The results in (Table 2) showed that Software as a service (SaaS) is the most widely used computing model with 81.7% of respondents indicating its use. This suggests that academic libraries primarily rely on SaaS cloud-based applications for online cataloguing, institutional repositories and collaboration. This is followed by Hybrid cloud with 30.4% as cloud model adopted, implying that some libraries combine on-premise infrastructure with public cloud services for data sensitivity and institutional policy that require local control. The results also revealed that 24.3% respondents indicated the use of Platform as a

Table 2: Cloud model

Statements- cloud model	Frequency	Percentage (%)
Infrastructure as a service (IaaS)	39	16.5%
Platform as a service (PaaS)	8	24.3%
Software as a service (SaaS)	94	81.7%
Hybrid cloud	35	30.4%
Google Docs	16	8.7%

service (PaaS) and 16.5% indicated the use of Infrastructure as a service (IaaS). The least used cloud model was Google Docs cloud with 8.7%

The dominance of SaaS suggest that libraries will remain vibrant, accessible hubs of learning and discovering. This study aligns with the finding of Mantri (2023) who reported that majority of academic libraries in India use SaaS to revolutionize their libraries and that SaaS is the most accessible and cost-effective cloud model for academic libraries. The moderate adoption of Hybrid suggest that some institutions aim to balance security and scalability by maintaining sensitive data on private servers while utilizing public cloud platforms for general services (OkiKe and Omali 2023). The lower adoption level of PaaS and IaaS may be attributed to limited ICT expertise and knowledge about the services

Research Question 2: What are the benefits of using cloud computing for service delivery in academic libraries?

Table 3 presented the results on the benefits of using cloud computing in academic libraries. Result in (Table 3) revealed that respondents strongly agreed or agreed that cloud computing was highly beneficial for library service with an overall grand mean of 4.19. Results in Table 3 further revealed that the highest rated benefits were cloud computing improves access to library materials with mean score 4.39, cloud computing allows remote and convenient access to services with a mean score of 4.36 and cloud computing enhances speed and efficiency of service delivery with a mean score of 4.34. This imply that cloud computing significantly improves user's ability to access library materials, allows users remote and convenient access to services regardless of your location, thereby enhancing speed and efficiency of services delivered to users. These findings align with the findings of Karthika and Dominic (2025) and Akinyemi et- al. (2025) who reported that libraries adopted computing technology to facilitate collaboration, enhance accessibility, and manage resources effectively. The least benefits (cloud computing enhances scalability and flexibility of operations) and (cloud computing reduces operational costs) were positively rated with mean scores of 4.03 and 3.91 respectively. Enhancing scalability and flexibility of operations suggest that libraries are yet to experience the capacity of cloud systems to preserve vast diverse collection without being constrained by physical space. Similarly, the positive mean score (3.91) of reducing

operational costs could be attributed to the service capability to eliminate the system maintenance and upgrade responsibility. Indrajai and Satishkumar (2025) reported that cloud computing reduces long-term information technology (IT) expenditures.

Research question 3: What are the challenges affecting the adoption of cloud computing for service delivery in academic libraries?

The results in (Table 4) showed the academic libraries face challenges affecting the adoption of cloud computing in academic libraries. Finding from the Table revealed that all the factors fell within the High challenge range. Results in Table 4 revealed that respondents strongly agreed or agreed with all the statement on challenges affecting the adoption of cloud computing with mean score of ≥ 4.19 indicating that libraries staff face substantial challenges in adopting cloud technologies.

Table 4 further revealed that the most significant challenge identified was poor internet connectivity with the highest mean score of 4:34. This suggest continuous lack of internet service which disrupts access to cloud-based resources and restrict remote services. To function effectively, cloud-based applications require robust and reliable internet connections. This finding agrees with the finding of Kayode et al. (2025) who reported poor internet connectivity as one of the challenges encountered when implementing cloud computing. Financial constraints with mean score of 4.30 was ranked among the top challenges. This suggest that financial limitation remain one of the hindrances to the adoption and implementation of cloud computing, similar finding was reported by Alabi et-al. (2024) and Isiaka et-al (2024). While Alabi et-al. (2024) reported that budget limitations hinder the ability of libraries to keep up with technological advancements, Isiaka et-al (2024) reported that libraries were poorly funded which affected the implementation. Erratic power supply, Inadequate experienced personnel and technical expertise were also the challenges that affected the adoption of cloud computing with mean scores of 4.27 and 4.26 respectively. Cloud computing relies constantly on power supply, failure of such disrupts service, thereby denying library users access to information. The infrastructural instability due to power supply reduces trust and lead to lower or no adoption. Yakubu (2023) sated that without consistent power supply, cloud platforms cannot be leveraged for library services. The high mean score of

Table 3: Benefits of Using Cloud Computing Application.

Statement on benefit	SD	D	U	A	SA	Mean score	Interpretation
Cloud computing improves access to library materials from anywhere	2	4	6	38	65	4.39	High Benefit
Cloud computing enhances speed and efficiency of service delivery	3	5	7	42	58	4.34	High Benefit
Cloud computing enables seamless access to digital resources	3	5	8	44	55	4.24	High Benefit
Cloud computing reduces operational costs	5	10	15	45	40	3.91	High Benefit
Cloud computing support collaboration and resource sharing	4	6	10	48	47	4.11	High Benefit
Cloud computing allows remote and convenient access to services	2	4	7	39	63	4.36	High Benefit
Cloud computing enhances scalability and flexibility of operations	5	7	12	46	45	4.03	High Benefit4
Cloud computing improves overall quality of library service	4	5	9	45	52	4.18	High Benefit

Table 4: Challenges affecting the adoption of cloud computing.

Statement on challenges	SD	D	U	A	SA	Mean score	Interpretation
Erratic power supply	3	6	8	38	60	4.27	High challenge
Poor Internet Connectivity	3	5	7	35	65	4.34	High challenge
Financial constraints	3	5	8	37	62	4.30	High challenge
Inadequate experienced personnel and technical expertise	3	5	9	40	58	4.26	High challenge
Security and privacy concern	4	6	9	41	55	4.19	High challenge

inadequate experienced personnel and technical expertise affect adoption significantly. This implies that that technical competence is essential for adoption of cloud computing. Without adequate training and ICT skilled staff, libraries would struggle to implement and manage cloud systems. Furthermore, the least adoption challenge was Security and privacy concern with mean score of 4.19 implying that libraries are concern about unauthorized access and data breaches of institution and user.

Conclusion and Recommendation

From the finding, the study concludes that cloud computing adoption in academic libraries is beneficial in improving access to library materials, enabling seamless access to digital resources, scalability and flexibility of operations, and supporting collaboration and resource sharing, however, adoption is significantly constrained by poor internet connectivity, financial constraints, erratic power supply, inadequate experienced personnel and technical expertise and security and privacy concern challenges. The study suggest that the institutions should provide alternative power source to supplement electricity, parent institution should adequately fund cloud computing project and alternative source of funding cloud computing project could be solicited, internet facilities and bandwidth should be improved and library staff should be trained and retrain at a regular interval.

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