

ADOPTION OF DIGITAL TRANSFORMATION STRATEGIES FOR LIBRARY SERVICES BY PRIVATE UNIVERSITY LIBRARIES IN OSUN STATE, NIGERIA

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Abstract

This study aims to investigate the adoption of digital transformation strategies for library services by private university libraries in Osun State, Nigeria. Three research questions were raised from the research objectives of the study. The research design adopted for the study was a descriptive survey design. Total enumeration method was used to draw the sample size. Data was collected from seventy one (71) library personnel in private university libraries in South West, Nigeria. Data analysis was analysed using simple mean, standard deviation, frequency count and percentages to answer the research questions. The findings of this study revealed that private universities utilise cloud-based services for efficient storage and accessibility of digital content. online access to electronic resources is user-friendly and widely utilised; and limited availability of financial resources hinders the effective implementation of digital transformation strategies. The study recommended that libraries should strengthen their collaboration with faculties to integrate digital resources into the curriculum and promote the extensive use of e-books and other electronic resources.

Keywords: Digital transformation strategies, adoption, private university, university library

Introduction

Digital transformation strategies enable academic libraries to be open to users without library staff restrictions. They are technologies that control and monitor library buildings, automatic doors, lighting, auto-service pavilions, and any computers. They help the libraries offer user-centric and user-friendly services (Brundaban and Nahak, 2019). Over the past decade, the nature of information needs and the search of libraries' patrons have practically changed a great deal. This is a result of the global digital revolution in information generation, reproduction, and dissemination. This upsurge in the format of information needs and quests has necessitated the digital transformation of libraries' holdings and services, thus resulting in modern libraries. Due to the complexity of blended learning, library users nowadays demand space, services, and information resources in advanced forms, e.g., data sets, multimedia resources, etc. Their demands for products and services are reduced, with a reduced request for print collections. In this age, libraries are budding into dynamic, tech-infused pivots that take care of the various information needs of modern society. Fredrick (2023) substantiated this assertion in his research that to achieve digital transformation, academic libraries need to adapt

to new technology, including changes in product and service level, orientation, proficiency skills, and leadership.

The essence of digital transformation is to breed modern libraries to influence patrons' experience, innovation, and efficiency and to keep libraries indispensable hubs of knowledge in the digital era and digital community. Due to the nature of a library, the journey through a digital transformation to a modern library is multidimensional, complex, and enormous; it involves lots of objectives and requires articulated and consolidated strategies and funds (Anuradha 2018). All these are essential in order to address technology, ensure a holistic transformation, enhance ease of access, user engagement, and the overall adeptness of information management, and meet the users' information needs in this digital era. In submission, Anuradha (2018) affirmed that digital transformation strategies are essential for academic libraries to foster a development in distance and unified learning and services that are user-driven and a response to any-time access to resources over a wide variety of platforms.

Branin (2016) opines that digital transformation implies a fundamental conception of the roles the library plays with respect to supporting research, teaching, and learning and is not limited to the sheer adoption of digital tools. The consortium services are not exempt. Digital transformation helps to align library services with the choices and expectations of this new generation. In his discourse, he encourages libraries to rise to the challenge and become vibrant and responsive to their users' information needs. Adopting digital transformation strategies comes with the necessity of the required knowledge and skills. This allows librarians who embrace and utilise it to remain regularly informed about the various cutting-edge technologies for sourcing, creating, and sharing information in this digital era.

Fredrick (2023) recognises two forms in which digital transformation can take place in academic libraries, which are the transformation of products and services. When an academic library digitises (converts into electronic forms) all its information resources, a digital transformation of products has taken place, while the use of electronic implements to carry out library services to users and facilitate access to library resources at ease implies a digital transformation of services.

Statement of the problem

University libraries appear to be struggling to keep pace with the rapid pace of digital transformation, which is essential for enhancing the user experience, improving library services, and supporting the academic programmes of their parent institutions. Despite the importance of digital transformation, studies such as Branin (2016) and Fredrick (2023) have shown that university libraries have continued to gradually adopt and implement digital transformation strategies to help them carry out their library services. As a result, these libraries are facing significant challenges in providing access to digital resources and collections, engaging users in digital services, and collaborating with other libraries and institutions. Furthermore, it seems that some of the library services that require digital transformation may not have been carried out in some of the university libraries in Nigeria. This study explores the digital strategies employed by selected private university libraries in Osun State, Nigeria.

Research questions

1. What are the digital transformation strategies adopted for library services in the selected private university libraries in Osun State, Nigeria?
2. What are the library services that digital transformation strategies were implemented on in the selected private university libraries in Osun State, Nigeria?
3. What are the challenges affecting the implementation of digital transformation strategies in private universities in Osun State, Nigeria?

Literature Review

Digital Transformation Strategies Used in Academic Libraries

Digital transformation is the process of integrating digital technologies into all parts of an organisation, such as products, services, or operations, to deliver value to customers. As pointed out by Coursera (2024) in Raja and Michael (2024), in a globally and digitally connected landscape, this type of transformation is more than keeping up with the rest of the world and your industry; it is about continuing to innovate and seeking new, better ways of doing things. The library is also not left out of this digital transformation drive, especially as it cuts across their library services. The digital transformation of a library's holdings and practices involves strategies such as digitising information resources, retrospective conversion, mobile apps, OPAC, IDR, e-learning platforms, RFID technology, ORS, innovative library management systems, data analytics, OAI, and collaborative technologies. This helps library users access resources remotely and at any time. Artificial intelligence (AI) can also transform library practices, making them a digital community for patrons. Adopting these technologies ensures libraries remain accessible, adaptable, and vital community centres.

Brundaban and Nahak (2019) and Chikkamanju (2022) have both emphasised the importance of digital transformation in academic libraries. Brundaban and Nahak emphasize the need for high-speed internet, uninterrupted power supply, metadata, RFID, barcode, smart card, plagiarism software, institutional repository software, Wi-Fi/Li-Fi premises, green library buildings, and e-resources. Chikkamanju, on the other hand, highlights the use of internet sharing tools, Web 2.0 tools, computer and communication technology, bar code, RFID, smart card technology, social networking sites, big data, blockchain, cloud computing, robotic technology, and the Internet of Things (IoT). Both lists provide a strong foundation for digital transformation, but Brundaban and Nahak could benefit from a more integrated approach. By integrating these perspectives, academic libraries can transition into resilient and innovative digital environments, enhancing their ability to serve their communities in the digital age.

Katamba (2021) and Fredrick (2023) offer strategies for digitising library collections and practices, including updating curricula, implementing holistic curricula, providing ongoing professional development for librarians, and regularly evaluating ICT policies. They emphasise the role of AI in enhancing operational efficiency through tasks like generating abstracts and indexes. However, these strategies may not fully address the rapid pace of technological change. Fredrick's focus on AI should be managed carefully to ensure librarians can effectively use these tools and complement existing systems. A successful strategy should combine Katamba's approaches with Fredrick's innovative technologies, ensuring libraries transition into modern digital environments.

Raja and Michael (2024) identified strategies for digital transformation in academic libraries, focusing on emerging technologies like AI, LMS, blockchain, virtual reality, and augmented reality. They emphasise collaboration with faculty and researchers, accessibility for users with impairments, and digital literacy to bridge the digital divide. However, they acknowledge the challenges of integrating advanced technologies, such as financial, technical, and training barriers. They suggest a balanced approach, considering foundational infrastructure and existing resources for a smooth transition. Balancing these strategies with a strong foundation is crucial for successful implementation.

Library Services Applicable to Digital Transformation Strategies

The advent of digital technologies has revolutionized library operations, necessitating digital transformation to stay relevant and effective (Kelly et al. 2020). This transformation integrates digital technologies into library services such as collection development, information literacy, and community engagement (Singh et al. 2019). Successful implementations have improved services and user experience through digital collections and scholarship services (Chen et al. 2018; Lee et al. 2017) and enhanced digital literacy and confidence (Thompson et al. 2016). However, challenges include continuous staff training, infrastructure upgrades, digital divide, copyright issues, and digital preservation (Bertot et al. 2015; Kern et al. 2014). Libraries have addressed these challenges with strategic plans, infrastructure investments, skills training programmes, digital collections, enhanced user experiences, and community engagement (Sharma et al. 2020; Kim et al. 2019; Wang et al. 2018; Zhang et al. 2017; Xu et al. 2016; Hawkins et al. 2015). Libraries must embrace digital transformation to stay relevant and effective in the digital age. This involves integrating digital technologies into key services and enhancing user experiences. However, it presents challenges like securing funding and maintaining a balance between digital and traditional services. To develop effective strategies, libraries must understand these challenges, invest in technology, and prioritise digital literacy and inclusivity.

Challenges of Digital Transformation Strategies Implementation

Fredrick (2023) highlights the challenges in implementing digital transformation in academic libraries, including copyright law, university budget constraints, and the need for funding. Libraries must uphold intellectual property rights, which can be a challenge due to platforms like Sci-Hub and Library Genesis. Universities often spend resources on personnel, students, and physical structures, preventing digital transformation. Library consortiums can enhance collaborative inter-library services and resource sharing, but libraries must have state-of-the-art technology to participate. Challenges include technical and competency skills, change management, leadership, and a clear vision and mission.

Furthermore, Anuradha (2018) and Raja and Michael (2024) highlight common challenges faced by academic libraries in digital transformation, including a lack of clear vision, changing roles of staff, financial awareness, and balancing strategic and tactical goals. They emphasise the need for continuous assessment, funding, and social and ethical considerations. They also highlight the importance of phased implementation and iterative improvements to manage transitions effectively. By recognising these challenges and adopting a phased approach,

academic libraries can enhance their services and navigate the complexities of digital transformation.

Methodology

The nature of this study is quantitative; hence, the study adopted a descriptive survey research design. The target population for this study consists of library personnel (librarians and library officers) from private universities in Osun State. Total enumeration sampling was used to select a sample size of 71 library personnel from private universities in Osun State, Nigeria. The instrument that was used for data collection was a questionnaire titled ‘‘Digital Transformation Questionnaire’’. Seventy-one (71) copies of the questionnaire were administered to library personnel at private university libraries in southwest Nigeria for a period of two weeks. The data was collated and analysed using descriptive statistics such as frequency counts, percentages, mean, and standard deviation for the research questions 1–3. The Statistical Package for Social Sciences (SPSS) was used for computing and analysing the data generated from the study.

Results and Discussion

Research Question 1: What are the digital transformation strategies used by private universities in Osun State?

Table 1: Digital transformation strategies used by private universities in Osun State

Strategies	Not Used	Rarely Used	Used	Not Used	\bar{x}	Std Dev.
Digital catalog for efficient resource discovery.	5 (8.6%)	6 (10.3%)	7 (12.1%)	40 (69%)	3.41	.9918
Online access to electronic resources.	4 (6.9%)	6 (10.3%)	8 (13.8%)	40 (69%)	3.45	.9398
Optimization of library website for mobile devices.	-	6 (10.3%)	29 (50%)	23 (39.7%)	3.29	.6491
Engagement in social media platforms to communicate with users.	-	12 (20.7%)	29 (50%)	17 (29.3%)	3.09	.7079
Implementation of RFID technology to improve library circulation and security.	6 (10.3%)	18 (31%)	29 (50%)	5 (8.6%)	2.57	.7971
Integration of virtual reference services are effectively integrated into the library's digital strategy.	-	12 (20.7%)	23 (39.7%)	23 (39.7%)	3.19	.7598
robust off-campus access to digital resources for remote users.	-	6 (10.3%)	12 (20.7%)	40 (69%)	3.59	.6762
Information literacy programs to incorporate digital tools and resources.	-	6 (10.3%)	24 (41.4%)	28 (48.3%)	3.38	.6708
data analytics to enhance decision-making and resource allocation.	-	-	24 (41.4%)	34 (58.6%)	3.59	.4968
participation in collaborative digital projects with other institutions.	6 (10.3%)	6 (10.3%)	23 (39.7%)	23 (39.7%)	3.09	.9603
Integration of emerging technologies such as virtual reality or augmented into library services.	-	24 (41.4%)	23 (39.7%)	11 (19%)	2.78	.7502
Digital preservation strategies	6 (10.3%)	6 (10.3%)	29 (50%)	17 (29.3%)	2.98	.9078

Provision of a personalized user experience based on individual preferences.	6 (10.3%)	34 (58.6%)	18 (31%)	3.21	.6144
Promotion of open access initiatives	-	-	29 (50%)	3.50	.5043
collaboration with faculty to integrate digital resources into the curriculum.	6 (10.3%)	-	6 (10.3%)	3.59	.9372
Utilisation of cloud-based services for efficient storage and accessibility of digital content.	-	-	23 (39.7%)	3.60	.4934
active engagement in digitization projects to preserve unique and rare materials.	6 (10.3%)	23 (39.7%)	29 (50%)	3.40	.6738
Online tutorials and guides to assist users in navigating digital resources.	-	6 (10.3%)	35 (60.3%)	3.19	.6057
Real-time chat support for users seeking assistance through the library website	-	12 (20.7%)	41 (70.7%)	2.88	.5323
Use of machine learning or artificial intelligence to enhance user experiences.	-	36 (62.1%)	17 (29.3%)	2.47	.6546
Integration of accessibility features into digital resources to cater to diverse user needs.	-	12 (20.7%)	29 (50%)	3.09	.7079
regular update of the library website to incorporate the latest technological advancements.	-	-	23 (39.7%)	3.60	.4934
active support and participation in digital humanities initiatives.	-	6 (10.3%)	35 (60.3%)	3.19	.6057
Provision of training programs to enhance digital literacy skills among users.	-	-	29 (50%)	3.50	.5043

Table 1 shows results for digital transformation strategies used by private universities in Osun State. The results showed that some of the strategies used by private universities include the utilisation of cloud-based services for efficient storage and accessibility of digital content. (\bar{x} = 3.60; Std dev. =.4934); regular update of the library website to incorporate the latest technological advancements (\bar{x} = 3.60; Std dev. =.4934); robust off-campus access to digital resources for remote users (\bar{x} = 3.59; Std dev. =.6762); data analytics to enhance decision-making and resource allocation (\bar{x} = 3.59; St dev. =.4968); collaboration with faculty to integrate digital resources into the curriculum (\bar{x} = 3.59; Std dev. =.9372); promotion of open access initiatives (\bar{x} = 3.50; Std dev. =.5043); provision of training programmes to enhance digital literacy skills among users (\bar{x} = 3.50;. This implies that private universities have continued to utilise cloud-based services for efficient storage and accessibility of digital content, regularly update their library websites to incorporate the latest technological advancements, and also engage in robust off-campus access to digital resources for remote users. It was also pointed out from the results that the majority of private universities have failed to use machine learning or artificial intelligence to enhance their library user experiences.

The widespread utilisation of digital resources and collaboration with faculties to integrate them into the curriculum align with Brundaban and Nahak's (2019) findings, which emphasised the significance of digital resources in supporting academic programs. Chikkamanju's (2022) research also underscored the importance of librarian-faculty

collaboration in promoting information literacy and digital scholarship. The extensive promotion and utilisation of e-books and other electronic resources resonate with Raja and Michael's (2024) study, which highlighted the growing importance of digital resources in academic libraries. The findings suggest that private university libraries in Osun State are proactive in supporting student success and faculty research by providing user-friendly online access, collaborating with faculty, and promoting digital resources. The revelation made in this study appears to show the potential to contribute to the existing body of knowledge in academic libraries, highlighting the importance of user-friendly online access, collaboration with faculty, and promotion of digital resources.

Research Question 2: What are the library services that digital transformation strategies were implemented on in the selected private university libraries in Osun State, Nigeria?

Table 2: Library services where digital transformation strategies are deployed in private universities in Osun State

Item	Not true	True	Very True	\bar{x}	Std Dev.
The library employs a comprehensive digital catalog for efficient resource discovery.	-	23 (39.7%)	35 (60.3%)	2.60	.4934
Online access to electronic resources is user-friendly and widely utilized.	-	11 (19%)	47 (81%)	2.81	.3954
The library website is optimized for mobile devices, facilitating easy navigation.	-	23 (39.7%)	35 (60.3%)	2.60	.4934
The library actively engages in social media platforms for communication and outreach.	6 (10.3%)	18 (31%)	34 (58.6%)	2.48	.6816
RFID technology is extensively used to enhance library circulation and security.	12 (20.7%)	36 (61.1%)	10 (17.2%)	1.97	.6202
Virtual reference services are a prominent part of the library's digital strategy.	6 (10.3%)	23 (39.7%)	29 (50%)	2.40	.6738
Off-campus access to digital resources for remote users is efficiently facilitated.	6 (10.3%)	11 (19%)	41 (70.7%)	2.60	.6738
Information literacy programs are well-integrated with digital tools and resources.	6 (10.3%)	17 (29.3%)	35 (60.3%)	2.50	.6818
Data analytics is actively used to inform decision-making and resource allocation.	6 (10.3%)	34 (58.6%)	18 (31%)	2.21	.6144
The library participates in collaborative digital projects with other institutions.	6 (10.3%)	35 (60.3%)	17 (29.3%)	2.19	.6057
Emerging technologies like virtual reality or augmented reality are integrated into services.	24 (41.4%)	17 (29.3%)	17 (29.3%)	1.88	.8393
Digital preservation strategies are in place to ensure the longevity of digital collections.	-	23 (39.7%)	35 (60.3%)	2.60	.4934
The library website provides a personalized user experience based on individual preferences.	-	23 (39.7%)	35 (60.3%)	2.60	.4934
Open access initiatives are actively supported and promoted by the library.	-	29 (50%)	29 (50%)	2.50	.5043
The library collaborates with faculty to integrate digital resources into the curriculum.	-	18 (31%)	40 (69%)	2.69	.4666
Cloud-based services are extensively utilized	-	23	35	2.60	.4934

for storage and accessibility of digital content.		(39.7%)	(60.3%)		
The library actively engages in digitization projects to preserve unique materials.	6 (10.3%)	11 (19%)	41 (70.7%)	2.60	.6738
Online tutorials and guides assist users in navigating digital resources.	11 (19%)	24 (41.4%)	23 (39.7%)	2.21	.7436
Real-time chat support is available on the library website for user assistance.	12 (20.7%)	29 (50%)	17 (29.3%)	2.09	.7079
Machine learning or artificial intelligence enhances user experiences in library services.	24 (41.4%)	28 (48.3%)	6 (10.3%)	1.69	.6544
Accessibility features are integrated into digital resources to cater to diverse user needs.	-	40 (69%)	18 (31%)	2.31	.4666
User feedback is actively sought and used to improve digital services.	6 (10.3%)	24 (41.4%)	28 (48.3%)	2.38	.6708
The library website is regularly updated to incorporate the latest technological advancements.	-	24 (41.4%)	34 (58.6%)	2.59	.4968
The library actively supports and participates in digital humanities initiatives.	-	41 (70.7%)	17 (29.3%)	2.29	.4591
Training programs are provided to enhance digital literacy skills among users.	-	24 (41.4%)	34 (58.6%)	2.59	.4968
E-books and other electronic resources are extensively promoted and utilized.	-	18 (31%)	40 (69%)	2.69	.4666
Library services leverage social media for community engagement and promotion.	-	29 (50%)	29 (50%)	2.50	.5043
Interactive and dynamic multimedia content is integrated into library instructional materials.	6 (10.3%)	24 (41.4%)	28 (48.3%)	2.38	.6708
Digital signage is used effectively to communicate information within the library.	18 (31%)	18 (31%)	22 (37.9%)	2.07	.8348
The library website incorporates advanced search functionalities for efficient resource retrieval.	-	18 (31%)	40 (69%)	2.69	.4666

Table 2 shows the results of the responses of respondents on library services where digital transformation strategies are deployed in private universities in Osun State. It was revealed that online access to electronic resources is user-friendly and widely utilised ($\bar{x}=2.81$; Std dev. = .3954); the library collaborates with faculty to integrate digital resources into the curriculum (= 2.69; Std dev. = .4666); e-books and other electronic resources are extensively promoted and utilized ($\bar{x}= 2.69$; Std dev. = .4666); the library website incorporates advanced search functionalities for efficient resource retrieval ($\bar{x} = 2.69$; Std dev. = .4666); cloud-based services are extensively utilised for storage and accessibility of digital content ($\bar{x}=2.60$; Std dev. = .4934); the library actively engages in digitization projects to preserve unique materials ($\bar{x} = 2.60$; Std dev. = .6738); the library website is optimised for mobile devices, facilitating easy navigation ($\bar{x} = 2.60$; Std dev. = .4934); off-campus access to digital resources for remote users is efficiently facilitated ($\bar{x}=2.60$; Std dev. = .6738); digital preservation strategies are in place to ensure the longevity of digital collections ($\bar{x}= 2.60$; Std dev. = .4934); the library website provides a personalised user experience based on individual preferences ($\bar{x}=2.60$; Std dev. = .4934); and the library employs a comprehensive digital catalog for efficient resource discovery ($\bar{x} = 2.60$; Std dev. = .4934). By implication, private universities in Osun State ensure that online access to electronic resources is user-friendly and widely utilised. There is collaboration with

faculty to integrate digital resources into the curriculum, and their e-books and other electronic resources are extensively promoted and utilised. This point mainly refers to the digitally transformed e-library services of their library.

The regular update of websites to incorporate the latest technological advancements is consistent with Singh et al.'s (2019) research, which emphasised the importance of libraries' online presence and user experience. Chen et al.'s (2018) study also underscored the significance of libraries' websites in providing access to digital resources and services. Similarly, the provision of robust off-campus access to digital resources for remote users resonates with Bertot et al.'s (2015) findings, which highlighted the importance of remote access to library resources and services. These findings have far-reaching implications for the future of librarianship, highlighting the need for libraries to prioritise digital innovation and user-centred services to support the evolving needs of their users. With the adoption of cloud-based services, regular updates to their websites, and the provision of robust off-campus access, private university libraries can enhance their services and support the academic performance of their users.

Research Question 3: What are the challenges of implementing digital transformation strategies in private University libraries in Osun State?

Table 3: Challenges of implementing digital transformation strategies in private University libraries in Osun State

Challenges	SD	D	A	SA	\bar{x}	Std Dev.
The limited availability of financial resources hinders the effective implementation of digital transformation strategies.	-	6 (10.3%)	29 (50%)	23 (39.7%)	3.29	.6491
Insufficient training and skill development opportunities for library staff pose a challenge in adopting digital technologies.	-	24 (41.4%)	28 (48.3%)	6 (10.3%)	2.69	.6544
Inadequate ICT infrastructure and connectivity issues impede the seamless integration of digital tools and resources.	6 (10.3%)	23 (39.7%)	17 (29.3%)	12 (20.7%)	2.60	.9354
Resistance to change among library staff is a significant obstacle to the successful implementation of digital transformation strategies.	6 (10.3%)	24 (41.4%)	16 (27.6%)	12 (20.7%)	2.59	.9372
Limited awareness and understanding of the benefits of digital transformation hinder its widespread adoption.	-	24 (41.4%)	22 (37.9%)	12 (20.7%)	2.79	.7668
The absence of a clear digital strategy and roadmap makes it challenging to align transformation efforts with library goals.	-	18 (31%)	28 (48.3%)	12 (20.7%)	2.90	.7179
Security concerns related to the	-	17	35	6	2.81	.6057

digital environment pose a substantial challenge to the implementation of transformation strategies.		(29.3%)	(60.3%)	(10.3%)		
Difficulty in obtaining stakeholder buy-in and support affects the successful execution of digital initiatives.	-	12 (20.7%)	40 (69%)	6 (10.3%)	2.90	.5521
The lack of standardization and interoperability among digital tools and platforms complicates the integration process.	-	23 (39.7%)	29 (50%)	6 (10.3%)	2.71	.6491
Regulatory and policy constraints within the academic and institutional framework hinder the pace of digital transformation in libraries.	6 (10.3%)	12 (20.7%)	28 (48.3%)	12 (20.7%)	2.79	.8936

Table 3 shows the responses of library personnel to the challenges of implementing digital transformation strategies in private university libraries in Osun State. It was revealed that the limited availability of financial resources hinders the effective implementation of digital transformation strategies ($\bar{x} = 3.29$; Std dev. =.6491); the absence of a clear digital strategy and road map makes it challenging to align transformation efforts with library goals ($\bar{x} = 2.90$; Std dev. =.7179); difficulty in obtaining stakeholder buy-in and support affects the successful execution of digital initiatives ($\bar{x} = 2.90$; Std dev. =.5521); and security concerns related to the digital environment pose a substantial challenge to the implementation of transformation strategies ($\bar{x} = 2.81$; Std dev. =.6057). This goes to show that the majority of the library personnel of private universities in Osun State believe that the limited availability of financial resources hinders the effective implementation of digital transformation strategies, and the absence of a clear digital strategy and road map makes it challenging to align transformation efforts with library goals.

The libraries' perception that limited financial resources hinder effective digital transformation aligns with Fredrick's (2023) study, which emphasised the crucial role of adequate funding in supporting digital innovation in academic libraries. The absence of a clear digital strategy and roadmap, as identified by the libraries, is a critical obstacle to aligning transformation efforts with library goals. This finding is consistent with Anuradha's (2018) research, which highlighted the importance of a well-defined digital strategy in guiding libraries' transformation efforts. Raja and Michael's (2024) study also underscored the need for libraries to have a clear roadmap for digital transformation to ensure successful implementation. This finding suggests that private university libraries in Osun State face significant challenges in implementing digital transformation strategies due to limited financial resources and the absence of a clear digital strategy and roadmap. These findings have implications for library practice and policy, emphasising the need for libraries to prioritise securing adequate funding and developing a comprehensive digital strategy to support their transformation efforts. By addressing these challenges, libraries can effectively align their digital transformation efforts with their goals, enhance their services, and support the academic success of their users.

Conclusion

The study concluded that private university libraries in Osun State are at the forefront of adopting and implementing digital transformation strategies for their library services. It is clear that for effective library services, private university libraries have continued to adopt and implement a robust digital technology advancement strategy that will aid cloud-based storage and off-site access to their electronic collections. It can also be concluded that despite the challenges in implementing digital transformation strategies, private university libraries are not deterred in their drive to ensure their library services are digitally transformed in line with best global practices.

Recommendations

1. Private university libraries in Osun State should strengthen their collaboration with faculties to integrate digital resources into the curriculum and promote the extensive use of e-books and other electronic resources. They should also prioritise user-friendly online access to electronic resources and continuously assess and improve their services to meet the evolving needs of their users.
2. Private university libraries in Osun State should prioritise securing adequate funding to support digital transformation initiatives and develop a clear digital strategy and roadmap to guide their efforts. This will enable them to effectively align their transformation efforts with library goals and improve their overall services.
3. Private University libraries in Osun State should continue to leverage cloud-based services for efficient digital content management and regularly update their websites to incorporate the latest technological advancements. Additionally, they should explore innovative technologies and services to enhance the user experience and support faculty research and student success.

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