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Assessing Financial Investment and Maximization of Electronic Resources Usage at Technical University of Mombasa and Kenya Methodist University

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Abstract

Purpose: Academic libraries, such as those at the Technical University of Mombasa (TUM) and Kenya Methodist University (KeMU), have invested heavily in electronic resources to enhance academic performance and research output. These investments, funded by parent institutions, partners, and donors, are costly, prompting libraries to justify their spending and develop strategies for maximizing resource utilization. This study assessed financial investments and the maximization of electronic resource usage by analyzing budget allocations, user perceptions, utilization patterns, and benefits derived from these resources.

Methodology: Guided by Edward Freeman's 1984 Stakeholder Theory, the study employed a descriptive survey design with a target population of 23,039 and a sample size of 426, including undergraduate and postgraduate students, faculty, and library staff. Data was collected through questionnaires and interviews, with pretesting conducted at the University of Nairobi's Mombasa campus.

Results: The findings revealed that TUM and KeMU collectively spent $124,320.12 on electronic resources, with 83.8% of library staff expressing satisfaction with the budget, while users reported low perceptions of budget allocations. However, 75.8% of users actively utilized these resources and reported substantial academic benefits.

Conclusions: Financial investments significantly impact resource maximization, and involving users in the acquisition process could improve budget alignment with user needs. It recommended increased investment in electronic resources, staff training, user engagement in acquisition, and user involvement in resource reviews to enhance satisfaction and resource utilization. Further research is suggested to explore factors like user needs assessments, technological infrastructure, and information literacy programs to develop comprehensive strategies for optimizing electronic resource management in university libraries.

Keywords: *Library Resources Maximization, Library Financial Investment, Perceived Value on Electronic Resources, e-resources, university libraries*

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1.0 Introduction

In recent years, the demand for electronic resources in academic libraries has surged due to their accessibility, device compatibility, portability, and remote usability (Gul, 2019). Resources such as e-journals, e-books, and databases have become essential for research, teaching, and learning (Ankrah & Atuase, 2018). The global rise in electronic resource usage has led universities to invest heavily in these resources to meet user needs and adapt to modern information trends (Merande et al., 2021). To support this demand, libraries have expanded their budgets and implemented support services like online help desks, digital literacy training, and virtual tours (Fingillah, 2023).

However, maximizing the effectiveness of these resources remains challenging. Libraries must justify their investments by demonstrating how electronic resources enhance academic outcomes. For example, universities in Saudi Arabia and Nigeria have been forced to assess their electronic resource investments to ensure value and improve usage (Yamani, 2023; Ifijeh & Yusuf, 2020). A similar challenge is observed in Kenyan universities, where declining budgets have increased pressure to validate electronic resource spending (Nyakweba et al., 2022). Many universities struggle to assess whether electronic resources provide better value than traditional collections, leading to a need for strategies that optimize both financial investment and resource utilization.

Globally, universities in the U.S., Ghana, and Mozambique have invested heavily in electronic resources to enhance educational quality (Rubin & Rubin, 2020; Abdullah et al., 2023). In Africa, high resource costs have driven many institutions to form consortia, such as the Nigerian University Library Consortium, to share resources and negotiate better prices (Atkinson, 2019). Kenyan universities like the University of Nairobi supplement government funding with internal revenue, grants, and donations to support their electronic resource budgets (Nche, 2022).

TUM and KeMU have made substantial investments in electronic resources and are members of the Kenya Libraries and Information Services Consortium (KLISC), which grants access to a wide range of resources. They have also implemented various support services like digital literacy programs and remote access tools (TUM, 2024; KeMU, 2024). Despite these efforts, there is limited understanding of how financial investments directly impact the maximization of these resources, and there is a need for strategies to optimize budget usage.

Effective maximization of electronic resources requires strategies that align resource use with university objectives, manage costs, integrate systems, and incorporate user feedback (Rafiq, 2021). TUM and KeMU have made significant strides, but a comprehensive evaluation is needed to fully understand the return on investment in electronic resources and develop strategies for better budget allocation.

This study evaluated the impact of financial investments on maximizing electronic resources at TUM and KeMU by analyzing budget allocations, user perceptions, and resource utilization. The goal was to develop strategies that optimize resource allocation, improve user engagement, and enhance the benefits of electronic resources for teaching, learning, and research. The study also offers a framework for other universities to optimize their financial investments in electronic resources.

Financial investment in electronic resources involves libraries allocating funds to acquire, provide, and maintain electronic resources (Sahoo et al., 2019). According to Lewis et al. (2022), libraries have discovered that offering electronic resources is expensive, leading them

to invest substantial amounts to ensure their availability which has in turn increased the library budgets (Savova & Price, 2019).

Libraries primarily rely on internal funding sources such as student fees, library fees, income-generating initiatives, and allocations from the university's general fund (Rubin & Rubin, 2020). To complement these budgets, Mwangi et al. (2021) and Ubogu (2019) recommend that libraries explore alternative funding avenues, such as partnerships and donations. Mwangi et al. (2021) further suggest that libraries join consortia, launch fundraising campaigns, solicit alumni support, and explore the commercialization of university services. According to Namugera and Okello (2023) embracing such initiatives could help libraries expand their collections and maximize their electronic resource utilization.

Sahoo et al. (2019) recommend that libraries assess their financial investments to gain a broader understanding of their budget allocations, their user's perception of those budgets, the utilization patterns of the resources, and the benefits derived from these investments to guide developing strategies to further enhance the utilization and benefits of these resources. Such assessments could also address the concern raised by IFLA (2019) regarding libraries' lack of understanding of the actual costs associated with maximizing electronic resources, which hinders them from fully determining whether the benefits outweigh the expenses.

This study was further guided by Edward Freeman's 1984 Stakeholders Theory which states that an organization's success is determined by the profits and the value delivered to stakeholders through the benefits generated from maximizing their operations. The theory posits that for organizations to be successful and to deliver maximum value to their stakeholders, they have to consider their financial input and feedback from stakeholders when making decisions about financial investments. In doing so, they can better align their resource allocation with user needs, enhance resource utilization, and achieve greater returns on investment (Freeman et al., 2021).

2.0 Methodology

The study employed a mixed-method approach with a descriptive survey research design to collect both quantitative and qualitative data. The study had a target population of 23,039 and the sample size was 426 constituting 200 undergraduate and 80 postgraduate students, 120 faculty members, and 6 library staff. The undergraduate and postgraduate students were selected using stratified random sampling; ffaculty members were chosen through stratified sampling, proportional sampling, and random sampling to ensure fair representation across all specializations and departments. Library staff were selected using purposive sampling to identify key informants, including university librarians, e-resources librarians, and systems librarians. The data was collected using questionnaires and interviews. 420 questionnaires were distributed to the undergraduate and postgraduate students, and faculty members, and 384 were correctly completed and returned. Data was analyzed using the Statistical Package for Social Sciences (SPSS), with descriptive statistics such as mean, percentage, frequency, and standard deviation employed. Inferential statistics, including correlation and regression analyses, were used to assess relationships between study variables.

3.0 Results and Discussion

The results of this study provided critical insights into the financial investments and utilization of electronic resources at TUM and KeMU, supported by a high Cronbach's Alpha value of 0.891, demonstrating the reliability of its findings. The response rate was 91.43% for questionnaires distributed to undergraduate, postgraduate, and faculty members, and 100% for interviews with library staff, considered highly satisfactory for data collection (Sataloff &

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Vontela, 2021). Most respondents were young adults, with 51.6% aged 18-24, reflecting a group more engaged with digital technologies and electronic resources. Additionally, 6.1% were aged 45-54, offering perspectives from more experienced individuals in their academic and professional careers.

3.1 Results on Budget Allocations

The first objective of this study sought to establish the budget allocations for different electronic resource functions and the library staff's perception of them to determine their effectiveness in maximizing electronic resources at TUM and KeMU. This is shown in Table 1.

Table 1: Budget Allocation for Electronic Resource

Electronic resource Budget	N	Total (USD)	Mean (USD)
Total Budget allocation for electronic resources	6	209790.21	34965.03
Annual electronic resources subscription fees	6	124320.12	20720.02
Purchase of additional electronic resources	6	4662.00	777.00
Purchasing Electronic resources infrastructure	6	93240.09	1554.00
E-resources staff training	6	0	0
E-resources infrastructure servicing	6	23310.02	3885.00

Table 1 highlights the budget allocation for electronic resources at TUM and KeMU, showing a strong focus on providing these resources, with an average of $34,965.03 USD per university. This includes approximately $20,720.02 USD for subscription fees, $1,554.00 USD for infrastructure, $3,885.00 USD for servicing existing infrastructure, and $777.00 USD for acquiring additional electronic resources. Notably, neither university allocated funds for staff training. Interviews revealed that 83.3% of library staff were satisfied with the budget, while 16.7% expressed dissatisfaction, citing the need for more funds to purchase additional resources and support services like marketing, user needs assessments, and staff training to further enhance resource utilization.

This contrasts with Nyakweba et al. (2022), which found that many Kenyan libraries struggled with budget allocations, suggesting TUM and KeMU have optimized their budgets effectively. While current funding focuses on subscription fees and infrastructure, a more balanced approach, including funds for staff training, could further improve resource maximization, aligning with Daramola's (2022) emphasis on the importance of library staff in optimizing electronic resources.

3.2 Results on User Perception of Electronic Resource Budget Allocations

The second objective aimed to assess users' perceptions of the electronic resources budget allocations. The survey questions explored students' and faculty members' awareness of budget allocations, their involvement in decision-making processes related to acquiring electronic resources, participation in purchasing additional resources, acquiring non-library-provided resources, and investment in apps for easier access to electronic resources. Respondents rated their agreement with these statements using a 5-point Likert scale and the means tabulated as in Table 2.

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Table 2: User Perception of Electronic Resource Budget Allocations

Variables	N	Mean	Std. Deviation
Students and faculty members are aware of the budget allocations for e-resources.	384	2.57	1.218
Students and faculty members participate in the decision-making process of acquiring electronic resources.	384	2.34	1.172
The library purchases additional electronic resources based on students' and faculty members' suggestions.	384	2.62	1.201
I have purchased additional electronic resources not provided by my library.	384	2.72	1.336
I have invested in apps to aid with accessing the library's e-resources	384	2.83	1.323
Aggregate Mean		**2.62**	**1.25**

Table 2 on user perceptions of electronic resource budget allocations reveals low awareness and involvement among respondents in the financial decisions regarding electronic resources, with an aggregate mean of 2.62, below the midpoint of 3. This suggests minimal user participation in decision-making processes, such as the purchase of additional resources based on user suggestions, individual investments in non-library resources, and the use of apps to facilitate access to e-resources at both universities.

Additionally, most respondents were unaware of the library's spending on electronic resources and rarely participated in e-resource acquisition decisions. The responsiveness to user suggestions for purchasing additional resources received a moderate mean score of 2.62, while personal investment in apps to enhance access had the highest mean score of 2.83.

These findings indicate minimal user involvement in financial investment decisions, despite their critical role in maximizing resource utilization (Ternenge & Kashimana, 2019). Users' needs and perceptions influence financial decisions, marketing strategies, utilization, and support services for electronic resources. If users are excluded from decision-making, they may not recognize the value of the resources or use them effectively, potentially leading to financial losses (Freeman et al., 2021).

3.3 Results on Frequency of Utilization of Electronic Resources

The third objective aimed to evaluate how often respondents utilized electronic resources. Participants were asked to rate their usage frequency on a 5-point Likert scale, with the following options: (1) Never, (2) Several times a month, (3) Once a week, (4) Several times a week, and (5) Daily, as shown in Figure 1.

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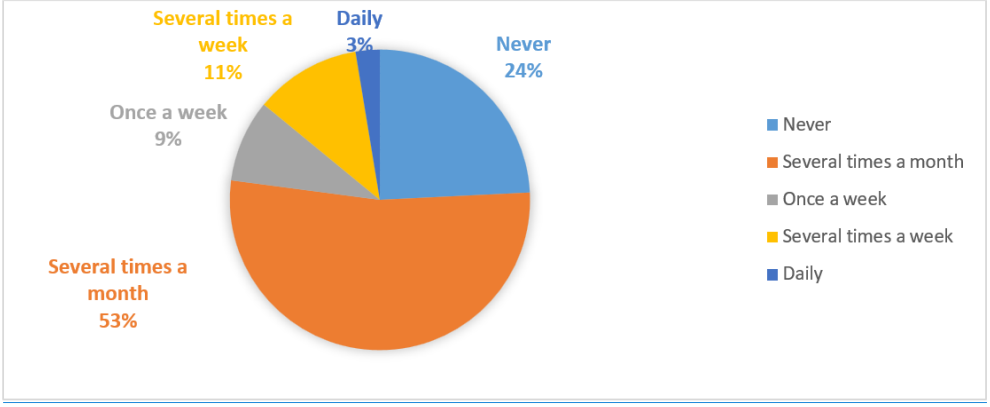
Figure 1: Frequency of Utilization of Electronic Resource



Among the respondents, 291 (75.8%) reported using electronic resources daily to several times a month, indicating a high overall utilization rate at TUM and KeMU. In contrast, 93 respondents (24.2%) reported not using these resources at all. This utilization rate is higher than the 60% reported by Habib et al. (2022) in Pakistan and the 47.2% reported by Roy & Hussain (2019) in India. Francis (2023) suggests that libraries should continually monitor usage patterns to understand and address the needs of non-users, aiming to develop strategies to increase their engagement. Interviews revealed that library staff frequently used usage statistics, feedback, and search logs to track utilization. The study also found that conducting surveys through questionnaires, interviews, and focus groups could provide valuable insights into non-users, enabling libraries to tailor support services for improved utilization (Francis, 2023).

The data presented in Table 2 reveal low user engagement in decision-making processes related to electronic resource acquisition and a relatively low perception of library budget allocations among users. According to stakeholder theory, the library should address these issues to identify challenges and opportunities for improving electronic resource usage (Freeman et al., 2021). This involves allocating budgets for support services like user needs assessments to understand and address why 24.2% of users did not utilize the resources. Moreover, as highlighted in Table 2, the library should increase user involvement in decisions regarding resource acquisition to better address the information needs of all users. This strategy is anticipated to improve utilization and enhance the effectiveness of electronic resources at TUM and KeMU.

3.4 Results on the Benefits of Electronic Resources

The fourth objective aimed to assess how financial investments in electronic resources impact their effectiveness by identifying specific benefits. Respondents rated various statements on a 5-point Likert scale, including the attraction of additional funding, improved collaboration, justification of spending, enhancement of teaching, learning, and research quality, and overall return on investment. Results are shown in Table 3.

Table 3: Benefits of Electronic Resources

Benefits of electronic resources	N	Mean	Std. Deviation
Electronic resources have attracted more funding to the university	384	3.39	1.063
Electronic resources have facilitated better collaboration with colleagues and students.	384	3.48	1.108
The university's spending on electronic resources is justified by the benefits they provide.	384	3.42	1.071
Electronic resources have improved the quality of teaching, learning, and research.	384	3.52	1.047
The university has an excellent Return on investment in electronic resources.	384	3.21	1.120

Table 3 reveals that most respondents agreed that electronic resources provided significant benefits, with all mean scores surpassing the midpoint of 3. The most highly rated benefit was the enhancement of teaching, learning, and research quality, followed by improved collaboration among colleagues and students. This finding aligns with Habib et al. (2022), which found that electronic resources were most commonly used for assignments, lecture preparation, research, and staying updated on current knowledge. Similarly, Roy and Hussain (2019) noted that users preferred electronic resources for research, assignments, and seminars. These studies support the conclusion that the university's investment in electronic resources is justified by the benefits they offer to the academic experience.

These findings highlight a positive perception of the benefits provided by electronic resources, consistent with the high utilization rates depicted in Figure 2. However, the overall perception of return on investment was relatively lower, with a mean score of 3.21. This suggests some reservations or perceived shortcomings in the return on investment among undergraduate and postgraduate students, as well as faculty members, despite recognizing the benefits of electronic resources. To address this, user needs assessments could be conducted to understand the reasons behind this rating and to explore strategies for optimizing financial investment in electronic resources (Francis, 2023).

3.5 Correlation Analysis Results

A Pearson correlation analysis was conducted to examine the relationships between the study's variables, as detailed in Tables 4.

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Table 4: Correlation Table

		Budget Allocation	Perceived value on budget allocation	Benefits of Electronic resources	Utilization of electronic resources	Maximizing electronic resources
Budget Allocation	Pearson Correlation	1				
	Sig. (2-tailed)					
Perceived value on budget allocation	Pearson Correlation	0.752	1			
	Sig. (2-tailed)	0.0001				
Benefits of Electronic resources	Pearson Correlation	0.601	0.651	1		
	Sig. (2-tailed)	0.001	<0.001			
Utilization of electronic resources	Pearson Correlation	0.653	0.702	0.751	1	
	Sig. (2-tailed)	0.010	<0.001	<0.001		
Maximizing electronic resources	Pearson Correlation	0.801	0.851	0.852	0.901	1
	Sig. (2-tailed)	0.0002	<0.001	<0.001	<0.001	

Table 4 demonstrates robust positive relationships among variables associated with the maximization of electronic resources. Specifically, budget allocation is strongly positively correlated with the perceived value of the budget allocation ($r = 0.752$, $p < 0.001$), indicating that increased funding enhances the perceived value of electronic resources. This perceived value, in turn, has a significant impact on both the benefits and utilization of these resources. Additionally, the benefits of electronic resources are strongly correlated with their utilization and overall maximization. The utilization of electronic resources also shows a very strong positive correlation with their maximization, suggesting that higher usage directly contributes to more effective resource maximization.

The findings in Table 4 highlight the crucial role of budget allocation in influencing the perceived value and effective utilization of electronic resources. Adequate funding enhances how these resources are valued, utilized, and ultimately maximized, which leads to better academic outcomes and research productivity (Blagg & Blom, 2018). This is supported by interview data, which shows that increased financial investments in electronic resources over the past five years have resulted in significant benefits, such as positive personal testimonials, improved pass rates in certain programs, and higher postgraduate research output. Overall, these results underscore that effective budget allocation and a high perceived value

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significantly improve the benefits, utilization, and overall maximization of electronic resources, as also noted by Wagay and Dutta (2024).

3.6 Analysis Results

The study used a linear, regression analysis to establish the connection between the study's dependent variable, Maximization of electronic resources usage, and independent variables under financial investment which included, budget allocation, the perceived value of budget allocation, benefits of electronic resources, and utilization of electronic resources.

Model Summary Results

The study aimed to determine the regression relationship between Maximization of electronic resource usage and financial investment. The results were as shown in Tables 5, 6, and 7.

Table 5: Model Summary Results

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	Durbin-Watson
1	.844[a]	.713	.703	.48339	1.788

a. Predictors: (Constant), Utilization of electronic resources (X_4), Budget Allocation (X_1), Benefits of Electronic resources (X_3), Perceived value on budget allocation (X_2)
b. Dependent Variable: Maximization of electronic resources usage (Y)

Table 5 shows an adjusted R^2 value of 0.703, indicating that approximately 71.3% of the variance in the maximization of electronic resources was explained by the model. This suggests that the model was well-suited for this study (Hayadi & El Emary, 2024).

ANOVA

Table 6 demonstrates that all four variables had a positive and significant impact on the maximization of electronic resources.

Table 6: ANOVA Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	34.930	4	8.733	108.737	.000[b]
	Residual	4.256	111	.080		
	Total	39.186	115			

a. Dependent Variable: Maximization of electronic resources usage (Y)

b. Predictors: (Constant), Utilization of electronic resources (X_4), Budget Allocation (X_1), Benefits of Electronic resources (X_3), Perceived value on budget allocation (X_2)

Table 6 reinforces the idea that financial investment significantly influences the maximization of electronic resource usage. The high F-value of 108.737 ($p < 0.001$) demonstrates that the regression model was statistically significant in predicting the maximization of electronic resources and that the variations in the financial investments have a considerable impact on the maximization of electronic resource usage at both the TUM and KeMU.

These findings are consistent with other studies that emphasize the importance of budget prioritization in ensuring the full maximization of electronic resources. According to Breeding (2020), financial allocation is a crucial factor in determining the availability and quality of electronic resources in academic institutions. Similarly, Nche (2022) argues that universities with larger budget allocations are better positioned to procure advanced technological resources, leading to greater engagement from students and faculty. These studies confirm the critical role financial investment plays in maximizing the benefits of electronic resources.

Regression Coefficients Results

The analysis yielded the regression model's coefficient as shown in Table 7.

$Y=0.088+0.253X_1+0.189X_2+0.150X_3+0.367X_4$

Y –Maximization of electronic resource usage

X_1–Budget Allocation

X_2–Perceived value on budget allocation

X_3 –Benefits of Electronic resources; X_4–Utilization of electronic resources

Table 7: Regression Coefficients Results

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	.088	.171		.517	.608		
	Budget Allocation (X_1)	.253	.107	.307	.444	.022	.120	2.250
	Perceived value on budget allocation (X_2)	.18	.055	.187	.270	.001	.696	3.709
	Benefits of Electronic resources (X_3)	.150	.073	.148	.434	.046	.393	2.359
	Utilization of electronic resources (X_4)	.367	.114	.418	.528	.002	.120	1.893

a. Dependent Variable: Maximization of electronic resources usage (Y)

The regression coefficients presented in Table 7 reveal the magnitude and direction of the influence of each variable of financial investment on Maximization of electronic resource usage. The positive coefficients for Budget Allocation (0.253), reliability (0.189), quality (0.150), and cost (0.367) indicate that improvements in these aspects lead to higher Maximization of electronic resource usage.

The regression analysis reveals that financial investments, perceived value, perceived benefits, and utilization significantly influence the maximization of electronic resources. Higher budget allocations, especially for subscriptions and infrastructure, directly contribute to increased usage (Nche,2022), while users' perceptions of these investments further enhance engagement (Rafiq, 2021). Additionally, recognizing the benefits of electronic resources, such as improved research and collaboration, encouraged more frequent use (Rabiu, 2020). The most significant factor was utilization itself, where increased interaction with electronic resources created a positive cycle of engagement and maximization.

4.0 Conclusion

The study underscores the pivotal role of financial investment in maximizing electronic resources at TUM and KeMU. The analysis revealed that higher budget allocations significantly enhanced the perceived value, utilization, and overall maximization of these resources, leading to improved academic outcomes and research output. The strong positive correlations between budget allocation and the perceived benefits of electronic resources highlight the importance of adequate funding in realizing their full potential. The study also identified a critical need for dedicated funds for staff training, despite generally adequate budget allocations for electronic resources at TUM and KeMU. Additionally, awareness among students and faculty about the library's electronic resource budget was relatively low, suggesting a need for greater involvement in decision-making processes regarding resource selection and purchase. Addressing the usage patterns of the 24.2% of users who either did not use the resources or had a low perception of their return on investment could uncover specific challenges and opportunities to improve resource utilization. Overall, the study demonstrates that financial investment is essential for optimizing electronic resources. Moving forward, universities should consider increasing their budgets and involving users in decision-making to further enhance the effectiveness and utilization of these valuable resources.

5.0 Recommendations

This study recommends that TUM and KeMU consider increasing their budget allocations to further improve the quality and availability of electronic resources. Additionally, allocating funds for staff training will enhance resource management and user support. It is crucial to raise awareness among students and faculty about the library's budget and involve them in decision-making processes to better align resources with user needs. The study also highlights the importance of monitoring and analyzing usage patterns to identify challenges and opportunities for optimizing financial resources and maximizing resource utilization. Furthermore, it suggests investigating other factors that could impact resource maximization, such as user needs assessments, technological infrastructure, staff development, and information literacy programs. Addressing the usage patterns of the 24.2% of users who either did not engage with the resources or perceived their value as low can reveal specific challenges and improvement opportunities. Regular evaluation and adjustment of resource management strategies, combined with strengthening support services, will enhance the effectiveness and impact of electronic resources, ultimately leading to improved academic and research outcomes.

References

Atkinson, J. (2019). Collaboration by academic libraries: What are the benefits, what are the constraints, and what do you need to do to be successful? *New Review of Academic Librarianship*, *25*(1), 1-7. https://doi.org/10.1080/13614533.2019.1575016

Ankrah, E., & Atuase, D. (2018). The use of electronic resources by postgraduate students of the University of Cape Coast. *Library Philosophy and Practice*, 1-37.

https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=4675&context=libphilprac/1000

Blagg, K., & Blom, E. (2018). Evaluating the Return on Investment in Higher Education: An Assessment of Individual-and State-Level Returns. *Urban Institute*. https://eric.ed.gov/?id=ED592627

Bwalya, K. J., & Ssebbale, F. (2017). Factors influencing access to and usage of e-resources at Nkumba University, Uganda. *Mousaion: South African Journal of Information Studies, 35*(4), 21 pages. https://doi.org/10.25159/0027-2639/3742

Daramola, F. O. (2022). Utilization of e-resources for learning among undergraduates. *Indonesian Journal of Educational Research and Technology, 3*(1), 35-44. http://dx.doi.org/10.17509/ijert.v3i1.44731

Francis, F. (2023). Usage of E-Resources in Academic Libraries. *Journal of Online Engineering Education*, *14*(2), 13-26. https://www.onlineengineeringeducation.com/index.php/joee/article/view/95

Fingillah, S. A. (2023). Status and availability of e-resources in Kebbi State University of Science and Technology, Aliero (KSUSTA). Journal of Library Services and Technologies, 5(2), 45-52. https://doi.org/10.47524/jlst.v5i2.46

Fujiwara, D., Lawton, R. N., & Mourato, S. (2022). More than a good book: contingent valuation of public library services in England. In *The Economics of Books and Reading* (pp. 123-150). Cham: Springer Nature Switzerland. https://link.springer.com/chapter/10.1007/978-3-031-18199-3_6

Gul, S., Jan, S., & Shah, F. A. (2019). The impact of service quality on student satisfaction in higher education institutes of Khyber Pakhtunkhwa. *Review of Economics and Development Studies*, *5*(1), 217-224. DOI: 10.26710/reads.v5i1.589

Hayadi, B. H., & El Emary, I. M. (2024). Predicting Campaign ROI Using Decision Trees and Random Forests in Digital Marketing. *Journal of Digital Market and Digital Currency*, *1*(1), 1-15. http://jdmdc.com/index.php/JDMDC/article/view/5

Ifijeh, G., & Yusuf, F. (2020). COVID–19 pandemic and the future of Nigeria's university system: The quest for libraries' relevance. *The Journal of Academic Librarianship*, *46*(6), 102226. https://doi.org/10.1016/j.acalib.2020.102226

International Federation of Library Associations and Institutions. (2022, February 24). *Library return on investment: Review of evidence from the last 10 years*. IFLA. https://www.ifla.org/news/library-return-on-investment-review-of-evidence-from-the-last-10-years/

Kennedy, I. (2022). Sample size determination in test-retest and Cronbach alpha reliability estimates. *British Journal of Contemporary Education, 2*(1), 17-29. DOI: 10.52589/bjce-fy266hk9

Kenya Methodist University Library. (n.d.). *Kenya Methodist University Library*. https://library.kemu.ac.ke/

Lewis, D. W., Baich, T., Palmer, K. L., & Miller, W. M. (2022). The efficient provision of information resources in academic libraries: Theory and practice. *Library Trends*, *70*(3), 323-354. https://muse.jhu.edu/pub/1/article/858212/summary

Merande, J., Mwai, N., & Ogalo, J. (2021). Use Of Electronic Resources By Postgraduate Users in Kenyan Selected Academic Libraries. Journal of Information Sciences and Computing Technologies, 10(1), 1-12. Retrieved from. http://scitecresearch.com/journals/index.php/jisct/article/view/2055

Mwangi, K. W., Mainye, N., Ouso, D. O., Esoh, K., Muraya, A. W., Mwangi, C. K., ... & OpenScienceKE Collaborators. (2021). Open science in Kenya: where are we?.

Frontiers in research metrics and analytics, *6*, 669675. https://doi.org/10.3389/frma.2021.669675

Namugera, L., Bukirwa, J., & Okello-Obura, C. (2023). Library users' attitudes towards Virtual Library and Information Services in Ugandan public and private universities. https://digitalcommons.unl.edu/libphilprac/8036?utm_source=digitalcommons.unl.edu%2Flibphilprac%2F8036&utm_medium=PDF&utm_campaign=PDFCoverPages

Nche, E. C. (2022). Influence of Library Consortia on Resource Sharing in Academic Libraries: Case of University of Nairobi Library. http://erepository.uonbi.ac.ke/handle/11295/162143

Nyakweba, I., Bukirwa, J. M., Sendikadiwa, E., & Ratanya, F. C. (2022). Users' needs and expectations on information services provided in libraries: a case of four public university libraries from the western region of Kenya. Library Management, 43(1/2), 1-14. https://doi.org/10.1108/lm-12-2020-0178

Pandey, S., & Kumar, P. (2022). A theoretical framework on return on investment (ROI) in academic libraries. *Library Hi Tech News*, *39*(3), 5-11. https://www.emerald.com/insight/content/doi/10.1108/LHTN-11-2021-0082/full/html

Rafiq, M., Batool, S. H., Ali, A. F., & Ullah, M. (2021). University libraries response to COVID-19 pandemic: A developing country perspective. *The Journal of Academic Librarianship*, *47*(1), 102280. https://doi.org/10.1016/j.acalib.2020.102280

Roy, A., & Hussain, M. (2019). USE OF E-RESOURCES IN UNIVERSITY LIBRARIES OF SEVEN NORTH EASTERN STATES OF INDIA. *International Journal of Library & Information Science (IJLIS)*, *8*(2). http://www.iaeme.com/IJLIS/issues.asp?JType=IJLIS&VType=8&IType=1

Rubin, R. E., & Rubin, R. G. (2020). *Foundations of library and information science*. American Library Association. https://books.google.co.ke/books?hl=en&lr=&id=xsXGEAAAQBAJ&oi=fnd&pg=PP1&dq=rubin+and+rubin+2020+libraries&ots=L9sLGFwuit&sig=qGSfAGzmLzogNINvoxhfVvGS9NU&redir_esc=y#v=onepage&q=rubin%20and%20rubin%202020%20libraries&f=false

Sahoo, S., Mahapatra, R. K., & Pandey, S. (2019). Usability and Return on Investment (ROI) of Electronic Information Resources: An Evaluative Study on Selected Scientific & Research Institutes Libraries in Odisha. *Library Philosophy and Practice*, 1-14. https://digitalcommons.unl.edu/libphilprac/3821

Sataloff, R. T., & Vontela, S. (2021). Response rates in survey research. *Journal of Voice*, *35*(5), 683-684. https://www.jvoice.org/article/S0892-1997(21)00006-0/abstract

Savova, M., & Price, J. S. (2019). Redesigning the Academic library materials budget for the digital age: Applying the power of faceted classification to acquisitions fund management. https://scholarship.claremont.edu/library_staff/63/

Sisimwo, J. (2016). *Electronic resources and its application in collection development practices in academic libraries: the case of United States International University* (Doctoral dissertation, University of Nairobi). http://erepository.uonbi.ac.ke/handle/11295/99832

Technical University of Mombasa Library. (n.d.). *Electronic resources*. Technical University of Mombasa. https://library.tum.ac.ke/site/about?id=1082851721

Ternenge, T. S., & Kashimana, F. (2019). Availability, accessibility, and use of electronic information resources for research by students in Francis Sulemanu Idachaba Library University of Agriculture, Makurdi. *Library Philosophy and Practice (e-journal)*, *2352*, 1-41. https://digitalcommons.unl.edu/libphilprac/2352?utm_source=digitalcommons.unl.edu%2Flibphilprac%2F2352&utm_medium=PDF&utm_campaign=PDFCoverPages

Ubogu, J. (2019). Mentoring for professional development of academic librarians in Nigerian university libraries. *Library Philosophy and Practice*, 0_1-16. https://core.ac.uk/download/pdf/215161721.pdf

Wagay, J. A., & Dutta, S. (2024). Utilization of electronic resources: an analysis of awareness and perception of users of Kashmir University. *Information Discovery and Delivery*, *52*(2), 138-148. https://www.emerald.com/insight/content/doi/10.1108/IDD-08-2022-0083/full/html