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ABSTRACT:

Purpose: The study aimed to examine how user input and customization, resource availability, MIS system security, and ICT organization influence the performance of Management Information Systems (MIS) in tier-1 commercial banks operating in Nairobi City County, Kenya. The research sought to determine how strengthening MIS capabilities can enhance decision-making, operational efficiency, and overall bank performance.

Methodology: A descriptive research design was employed, targeting 15 tier-1 commercial banks in Nairobi. From each bank, three key personnel—including department heads, IT directors, CIOs, IT managers, and MIS specialists—were selected, giving a total sample of 45 respondents. Primary data were collected using structured questionnaires. Both descriptive and inferential statistical methods were applied in analyzing the data.

Findings: The results demonstrated that user satisfaction, effective system customization, adequate ICT resources, strong MIS security mechanisms, and well-organized ICT structures significantly improve MIS performance. Banks with highly developed IT departments recorded superior MIS effectiveness compared to those with less-developed ICT capacities.

Unique Contribution to Theory, Practice and Policy: Practically, it highlights the importance of investing in staff skills, system customization, security, and ICT infrastructure. For policy, it recommends stronger ICT governance, regular system upgrades, and improved regulatory guidelines to enhance sustainable MIS operations.

Keywords: Management Information Systems, user customization, ICT resources, MIS security, ICT organization, commercial banks, Nairobi, Kenya.

JEL Codes: F30, F39, G15, G23

INTRODUCTION

The banking industry business is known to have high competition, with the commercial banks engaging in a tussle for customers and hence, adopting unique development and growth strategies to increase volume (Musyoki, 2023). Success amidst the competition depends on the ability of banks to leverage robust and reliable management information systems (MIS) for calculating the profitability of customers. Information technologies have a significant impact on the financial industry, due to their role in connecting computers with one another and with customers who demand instant services (Aliyu & Tasmin, 2012). Banks maintain millions of clients' information, and the nature of this information infrastructure further solidifies the reliance of the industry on sophisticated MIS.

As the banking industry and needs of customers continue to change and expand, in order to match the high expectations, the MIS requirements have also changed. The advanced IT structure needed by the commercial banks will allow product differentiation, understand the mechanism of the marketplace, and provide prompt service to fulfill the needs of the customers (Kireru et al., 2016). The differences in the performance of commercial banks can be established back to the respective MIS functions and its consequent implication on their competitive position. Management info systems (MIS) are the order of the day among banks. Everywhere banks are making them come easier, and thus keep their customers happy, as well as saving them money by making their work easier (Pearlson & Galetta, 2024). Austrian banks also apply MIS to maintain market changes and regulations.

The DeLone and McLean model indicates that both the quality of the system and quality of the service matter when determining whether a management info system is successful or not (Alzahrani et al., 2017). Banks investing in creating good information systems and customer delight are likely to have satisfied users using system more. When you teach your employees properly, they will be able to apply all available tools and enhance the info systems of this bank (McIlwraith, 2021). The model also indicates that the success of the Management info systems is dependent on good service. When banks address their MIS security, they will be able to distribute more dependable and faster systems that will satisfy its users better thus leading to higher usage rates (Handoko et al., 2025). When banks are secure, they are able to ensure the

safety of their stuff, their name as well as ensuring that all things go on fine with the user. Innovative thinking within the company falls under this category.

The institutional theory asserts that the world influences organizations, it involves the aspects of resource that an organization has to contend with in response to demands (Kauppi, 2022). An example is when banks have plenty of cash and quality employees, they are able to apply new technology and concepts to make them more efficient and provide improved services. In addition, regulations could stipulate the usage of money where banks invest in specific areas with the aim of obeying the law and in the process altering the general way they do that (Kauppi, 2022). The correlation between the resources and the demands of the institution influence the work of banks and its victory.

MIS in banks within the US was brought about due to competition. Ackermann and Imoniana (2019) argue that banks have been using MIS when it comes to making decisions and dealing with risks. MIS in Brazil and France has been known to assist banks in working and coming up with stuff. However, when MIS is not up to standard, it can combust things. Frame (2023) reports that a back out in 2012 created loads of issues in the Royal Bank of Scotland, making the bank lose approximately $286 million. Therefore, it is not difficult to observe that MIS needs to be good and modern. MIS has helped to keep the customers happier or work more efficiently in South Africa (Awosejo & Mgwebi, 2024). The MIS has enabled banks in Nigeria to do better and compete, such as Ecobank. Banks in Egypt do better by ensuring that they adhere to the rules under MIS. In Algerian and Moroccan banks, the MIS is also boarding, and it makes the customer happier and work better (Mounia, 2020).

According to Odhiambo and Mang'ana (2022), Nairobi and Kenya at large, banks are adopting Management Info Systems as they strive to be in touch with the market changes and new regulations. There are still some inquiries toward the effectiveness of MIS in Kenya. Ochieng and Muthoni (2018) examined the overall MIS trend, yet Thuita and Njeru (2021) claimed that MIS within Kenya Commercial Bank enabled them to become better as they have acquired the ability to share knowledge and remain competitive. This further research will involve issues such as online security, adoption of artificial intelligence, and providing the customer with

what they desire. The ability to stay up to date and perform well in a bank will require a few things, as they continue to become more technical. This research will therefore seek to provide some useful information on how MIS can be improved to ensure that the banks in Kenya can improve and remain ahead.

According to Odindo (2021), Kenyan banks are transforming the way they manage data. One would be interested in how Management Information Systems (MIS) operate in the commercial banks of Nairobi. Although much has been written concerning MIS, very little has been known about the extent to which these features influence the performance of banks. Existing research typically considered such aspects as service or familiarity with ICT. They actually had nothing to say concerning the impact of user input and the ability to make things your own using profits (Odindo, 2021). You hear, certain researches address the question of service influence on banking, however, they do not mention that user customization would make the system more beneficial to everyone. This paper, therefore, poses the question on the effects of user feedback and system customization on profits.

Existing studies also examine the way of whether the availability of enough resources will affect the performance of Management Information Systems (MIS). According to some of these studies, lack of sufficient resources may prevent MIS to do well. Nonetheless, little evidence exists to support the connection between the availability of resources and profitability in Kenyan banks. This implies that though banks invest in technology, lack of sufficient human and financial resources could prevent them to perform well (Ananga & Mwalili, 2025). This paper aims at correcting that by posing the question of how the availability of the right resources affects the performance and profits of MIS of commercial banks in Nairobi. Moreover, MIS security has not been researched by many people. Most of the research has verified information security in banks, but not many have associated information security practices with MIS performance and profits. Considering that cyber-attacks are escalating, one should understand how effective security may improve the work of MIS. This study examines how good secure-net can favor privacy information and make the banking undertaken more secure and effective. Specifically, the study sought to;

i) Assess the effect of user feedback and customization on the overall performance of MIS in commercial banks in Nairobi City County.

ii) Examine how the availability of resources influences the MIS performance of commercial banks in Nairobi City County.
iii) Investigate how MIS security management affects MIS performance in commercial banks in Nairobi City County.
iv) Analyze how ICT infrastructure influences MIS performance in commercial banks in Nairobi City County.

RESEARCH METHODOLOGY

A descriptive research design was adopted to capture patterns, attitudes, and behaviors of MIS users and managers in tier-1 banks, focusing on key determinants of MIS performance. The target population comprised 15 leading commercial banks in Nairobi, with three key personnel from each bank—including department heads, IT directors, CIOs, IT managers, and MIS specialists such as database administrators, network engineers, and data scientists totaling 45 respondents. Primary data were collected through structured questionnaires, which were validated through pilot testing and expert review to ensure content validity. Reliability of the instruments was confirmed using Cronbach's Alpha. Data were analyzed using SPSS version 22, employing descriptive statistics such as frequencies, percentages, and means, as well as inferential techniques including multiple regression to examine the relationships between independent variables (user input and customization, resource availability, MIS security, ICT organization) and the dependent variable (MIS performance). Diagnostic tests, including multicollinearity, normality, linearity, heteroscedasticity, and sampling adequacy, were conducted to ensure the robustness of the results. Ethical considerations were strictly observed, including obtaining informed consent from participants, ensuring confidentiality, and securing approval from relevant authorities. This methodology enabled systematic collection, analysis, and interpretation of data to assess how organizational, technical, and user-centered factors influence MIS performance in Nairobi's leading commercial banks.

RESULTS AND DISCUSSIONS

Descriptive Statistics Analysis

Relationship between User Feedback and Customization and Performance

Table 1(below) presents descriptive statistic on user feedback and customization. Basing on the determinations, a significant portion of the participants affirmed with a (M= 4.54; SD =0.55) that an increased user engagement, loyalty, and retention can result from personalized and customized experiences that are informed by user feedback. Respondents agreed with (M=.4.41; SD = 0.53) that a more engaging and individualized experience can be produced by using user input to customize the product or service to each user's preferences. User feedback highlights areas for development and suggests fresh capabilities by offering insightful information about how users engage with products (M= 4.34; SD = 0.61). Businesses may improve the user experience by integrating customer input into user interfaces, product configurations, and personalized suggestions with a (M = 4.27; SD = 0.73). Finally, most of the participants (M=.4.41; SD = 0.53) affirmed that based on actual usage statistics and user preferences, user feedback enables ongoing product or service enhancement and refinement.

Table 1: ***Relationship between User Feedback and Customization and Performance***

Statement	M	SD
User feedback highlights areas for development and suggests fresh capabilities.	4.34	.61
A more engaging and individualized experience.	4.41	.53
Customization options can then be used to meet user preferences.	4.41	.76
Businesses may improve the user experience.	4.27	.73
Based on actual usage statistics and user preferences, user feedback.	4.41	.55
Increased user engagement, loyalty, and retention can result from.	4.54	.55
Creating unique products can provide businesses a competitive advantage.	4.18	.65
Aggregate Mean and Standard Deviation	**4.36**	**0.62**

Relationship between Resource Availability and Performance

Based on table 2 (below) outcomes, most of the participants affirmed with a (M =4.50; SD = 0.54) that assigning resources to projects according to their qualifications and experience is essential. Moreover, respondents agreed with (M=.4.40; SD = 0.65) that completing projects on schedule and under budget requires knowing who is available when and for how long. Basing on the determinations, participants affirmed that effective resource availability management eventually improves the company's financial performance. with a (M= 4.36; SD = 0.73). Additionally, the majority of respondents with a (M = 4.34; SD= 0.53) agreed that you can cut expenses related to idle or wasted resources by making sure they are used efficiently. Finally, most of the participants gave an affirmation that project outputs and overall financial results can be enhanced by efficiently monitoring and maximizing resource availability (M = 4.32; SD= 0.61). Resource availability is another critical area of focus to determine its influence

on MIS performance in commercial banks. Past research shows that not having enough stuff can mess up the implementation of Management Information Systems (MIS). But there's not much research linking having enough stuff to actually making money in Kenyan banks. For instance, Thuita and Njeru (2021) argues that money and people are important for keeping data safe, but doesn't look at how these things affect how well MIS works generally. This means that even if banks spend money on tech, not having enough resources can screw things up.

Table 2: Relationship between Resource Availability and Performance

Statement	M	SD
Project outputs and overall financial results can be enhanced.	4.32	.61
Assigning resources to projects according to their qualifications.	4.50	.54
Completing projects on schedule and under budget requires knowing who is available when and for how long.	4.40	.65
Increasing productivity and efficiency can result from resource allocation optimization.	4.29	.65
You can cut expenses related to idle or wasted resources by making sure they are used efficiently.	4.34	.53
Effective resource availability management eventually improves the company's financial performance.	4.36	.73
Upskilling and cross-training are used to improve our organization's resource flexibility and adaptability.	4.24	.65
Aggregate Mean and Standard Deviation	**4.35**	**0.62**

Relationship between MIS Security Management and Performance

Table 3: Relationship between MIS Security Management and Performance

Statement	M	SD
Secure bank system contributes to capability of the system	4.42	.72
Security breach always has direct impact on system capability.	4.33	.61
Effective and efficient security monitoring leads to minimal downtime	4.16	.54
Advanced security capabilities in banks contribute to a higher review and growth rate	4.35	.59
Capability and performance of bank systems lead to improved quality service	4.28	.69
ICT literacy has increased the performance of commercial banks	4.22	.78
The adoption of new technologies has contributed to the capability	4.42	.59
Aggregate Mean and Standard Deviation	**4.31**	**0.64**

The research objective here was establishing of the effect MIS Security Management on performance. Table 3(above) shows the respondent's views. Secure bank system contributes to

capability and performance of the system with a (M= 4.42; SD = 0.72). The outcomes pointed to most of the participants agreeing (M= 4.42; SD = 0.78) technologies has contributed to the capability and performance of bank systems. Security breach always has direct impact on system capability and performance. Participants (M= 4.28; SD 0.69) affirmed that capability and performance of bank systems lead to improved quality service. The respondents agreed that advanced security capabilities in banks contribute to a higher review and growth rate with a (mean = 4.35; SD= 0.59).

Relationship between ICT Infrastructure and Performance

Table 4: Relationship between ICT Infrastructure and Performance

Statement	M	SD
Computers, servers, networking hardware (such as switches and routers),	3.97	.87
Applications and programs within our company facilitate information.	4.50	.54
Our infrastructure, which includes internet connections.	4.22	.68
We have integrated systems, such databases, email servers.	4.59	.53
Long-distance communication within our company is made possible by technologies.	3.65	.88
In order to close the digital divide and guarantee that everyone has access to the advantages of technology, our ICT infrastructure is essential.	3.99	.69
Our facilities, which hold networking hardware and servers.	3.93	.78
Aggregate Mean and Standard Deviation	**4.12**	**0.71**

Determining the impact of ICT infrastructure on the performance of Nairobi City County's tier I commercial banks was the aim of this study. Table 4 (above) shows the respondent's views. The researcher integrated systems, such databases, email servers, and enterprise resource planning (ERP) systems, that regulate and control the information and communication flow inside a company with a (M= 4.59; SD = 0.53). The outcomes pointed to most of the participants agreeing (M= 4.50; SD = 0.54) that applications and programs within our company facilitate information management, communication, and data processing. Our infrastructure, which includes internet connections, links systems and devices to facilitate data transfer and communication with a (M = 4.22; SD = 0.68). Additionally, most of the participants (M= 3.99; SD 0.69) affirmed that in order to close the digital divide and guarantee that everyone has access to the advantages of technology, our ICT infrastructure is essential. The respondents agreed that computers, servers, networking hardware (such as switches and routers), and mobile devices are examples of the physical devices we have. with a (mean = 3.97; SD= 0.87).

ICT infrastructure is another critical area of focus to determine its influence on MIS performance in commercial banks. Previous research has acknowledged that resource constraints can impede effective MIS implementation; however, few studies have empirically linked resource availability directly to profitability outcomes in Kenyan banks (Odhiambo & Mang'ana, 2022).

Descriptive Statistics of Performance

Survey participants were asked to rate their level of agreement with the performance-related statements. The results are shown in Table 5. The investigation looked at the levels of agreement on the performance of Tier I Commercial Banks Table 5 shows the respondent's views.

Table 5: Performance of Tier I Commercial Banks

Statement	M	SD
Our company's ICT infrastructure facilitates process simplification.	3.97	.87
Effective risk management is crucial since banks.	4.50	.54
In terms of ROE and ROA, our bank is profitable.	4.22	.68
The way our bank uses its resources to make money is a critical component.	4.59	.53
We have sufficient capital, liquidity, and resilience to financial shocks.	3.65	.88
The way our bank uses its resources to make money is a critical component.	3.99	.69
Our profits have been rising in the last five years	3.93	.78
Aggregate Mean and Standard Deviation	**4.12**	**0.71**

After the analysis a significant portion of the participants affirmed that the way our bank uses its resources to make money is a critical component of performance that affects stability and profitability. Findings on Table 5 (above), showed that most of the participants gave an affirmation (M = 4.50; SD = 0.68) that effective risk management is crucial since banks are subject to a number of hazards, such as market, liquidity, and credit risk. In terms of ROE and ROA, the bank is profitable with a (M= 4.22; SD = 0.68). The way the bank uses its resources to make money is a critical component of performance that affects stability and profitability with a (M= 3.99; SD= 0.69). Our company's ICT infrastructure facilitates process simplification, better service delivery, and increased transparency (M= 3.97; SD= 0.87). Ananga and Mwalili (2025) discusses the significance of financial and human resources for data security, it does not examine how these resources affect broader MIS performance.

Understanding this association is vital for bank management as it can guide strategic decisions regarding resource allocation to enhance MIS capabilities. Additionally, the area of MIS security management remains.

Inferential Results

The results based on inferential statistics showing the connections between the study's predictor and criterion variables are presented in this section.

Relationship between Independent Variables

The results of the correlation analysis are shown in this section, depicting the relationships between the MIS performance and User feedback, Availability of resources, MIS security and ICT infrastructure variables of the study.

Table 6: Correlation Analysis

		MIS performance	User feedback	Availability of resources	MIS security	ICT infrastructure
MIS performance	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	132				
User feedback	Pearson Correlation	.251**	1			
	Sig. (2-tailed)	.004				
	N	132	132			
Availability of resources	Pearson Correlation	.342**	.602**	1		
	Sig. (2-tailed)	.000	.000			
	N	132	132	132		
MIS security	Pearson Correlation	.508**	.626**	.657**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	132	132	132	132	
ICT infrastructure	Pearson Correlation	.807**	.353**	.365**	.617**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	132	132	132	132	132

Source: Research Data (2025)

Deductions from Table 6 (above) indicated that user-feedback and the MIS performance in commercial banks in Nairobi City County were positively correlated at the significant 0.05 level. This correlation's strength was low at 25.1%. Furthermore, the deductions indicate that availability of resources and MIS performance in commercial banks in Nairobi City County are positively correlated at the significant 0.05 level. At 34.2%, this correlation is significant. The findings indicate a favorable at the significant 0.05 level; the correlation's strength is 50.8%, which is average. The findings imply that, at the significant 0.05 level, ICT infrastructure and MIS performance are positively correlated, with an average strength of 80.7%. Lots of research says not having enough stuff can get in the way of putting MIS into place. But not many studies have actually looked at whether having enough resources really helps Kenyan banks make more money (Handoko et al., 2025).

Model Summary Results

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.812[a]	.659	.649	.30036
a. Predictors: (Constant), user feedback, availability of resources, MIS security and ICT infrastructure				

b. Dependent Variable: MIS Performance.

Source: Research Data (2025)

Table 7(above) indicates that the research has an Adjusted R Square of 0.649. This is an indication that the user feedback, resources at their disposal, MIS security, and ICT set-up can be attributed to an explanatory capacity of about 64.9% of the MIS performance with 35.1% yet to be explained. In the past studies it was observed that the lack of sufficient resources may impair the effectiveness of the implementation of the Management Information Systems (MIS). Nevertheless, research that associates the available resources directly to the profitability of Kenyan banks is limited. An example is where Alzahrani et al. (2017) gives the importance of user feedback, resources, MIS security, and ICT infrastructure but does not actually explicitly discuss how the above influences the overall performance of MIS.

Analysis of Variance

This section provides the results that are based on the ANOVA that demonstrates the relations between the predictor and criterion variables of the study.

Table 8: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	22.168	4	5.542	61.427	.000[b]
	Residual	11.458	127	.090		
	Total	**33.625**	**131**			
a. Dependent: Performance						
b. Predictors: user feedback, availability of resources, MIS security and ICT infrastructure						

Source: Research Data (2025)

Table 9: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	**Std. Error**	**Beta**		
1	(Constant)	.425	.392		1.086	.280
	User feedback	.153	.109	.098	1.397	.046
	Availability of resources	.149	.104	.105	1.440	.049
	MIS security	.010	.124	.007	.083	.034
	ICT infrastructure	.888	.073	.799	12.095	.000
a. Dependent Variable: MIS Performance.						
Source: Research Data (2025)						

It is the user feedback that counts with regard to the level of Management Information Systems (MIS) effectiveness. It demonstrates whether the system is working or not. The availability of enough resources is the key to a successful Management Information System (MIS) running (Mugambi and Imaita, 2022). When the resources are sufficient, it becomes easier to construct, operate and to extract maximum benefits out of the MIS. This in turn causes the entire business to do well (Kweri, 2021). How secure an MIS affects how well it does. Good security is a must if you want the system and the company to get the best results (Kweri, 2021). Also, the ICT setup really matters for how good an MIS is. A good ICT setup – hardware, software, networks, and the right people – lets an MIS run the way it should. This means the company works better, makes smarter choices, and does better overall (Awosejo & Mgwebi, 2024).

The most successful variable for enhancing an MIS performance is ICT infrastructure, which is followed by User feedback, Availability of resources, and MIS security. statistically significant correlation between the company's success and each of ICT infrastructure, User feedback, Availability of resources, and MIS security (p-value<0.05).

$$\mathbf{Y = .425 + .153X_1 + .149X_2 + .010X_3 + .888X_4}$$

Where;

Y= MIS performance **.425**= Constant term, $\mathbf{.153X_1}$ = User feedback $\mathbf{.149X_2}$ = Availability of resources $\mathbf{.010X_3}$= MIS security, $\mathbf{.888X_4}$= ICT infrastructure.

Recommendations of the Study

The study recommends that bank managers actively collect and analyse user feedback to enhance MIS performance. Engaging users and understanding their preferences allows for the customization of MIS features to better meet their needs. Alternative methods of obtaining feedback, such as surveys, focus groups, or digital analytics, should be explored and the data applied systematically to improve system functionality and user satisfaction.

Effective resource management was also identified as critical for MIS success. Managers should maintain an accurate record of available resources including personnel, materials, time, and finances—and ensure their efficient allocation. Monitoring resource utilization, setting realistic goals, and fostering effective communication among staff are essential for completing projects on time, within budget, and to the required quality standards.

To ensure robust MIS security, ICT and security managers should implement high-quality Information Security Management Systems (ISMS), provide regular staff training on security protocols, and maintain contingency plans for potential incidents. Risk assessments and continuous monitoring should guide security practices to protect sensitive data and maintain system integrity. Maintaining a reliable ICT infrastructure is vital for MIS performance. ICT managers should adopt industry standards and best practices, align systems with government platforms for integration, and comply with frameworks such as the Government Enterprise Architecture (GEA) and Government Interoperability Framework (GIF). User-centered design should be prioritized in ICT projects, and communication and information sharing among partners should be enhanced. Where appropriate, wired technologies should be considered for high-data-load networks to ensure system efficiency and reliability.

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