Examining the Drivers of Mobile Banking Satisfaction: A Case Study of Banks in Nairobi, Kenya

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the Research Project contains no material previously published or written by another person except where due reference is made in the Research Project itself.

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This Research Project has been submitted for examination with my approval as the Supervisor.

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Abstract

The expansion of mobile banking has changed financial service delivery in Nairobi, Kenya. The study undertakes the exploration of factors influencing customer satisfaction in mobile banking through banks in Nairobi. It examines usability, security, functionality, performance, and customers' support using Multiple Linear Regression.

Data was collected through an online survey that was analyzed using MLR. The results showed that performance was the only significant negative predictor of customer satisfaction, therefore suggesting that users valued speed, reliability, and efficiency more than usability, security, and customer support. This contrasts with earlier studies where usability and support services were given more weight as the determinants of satisfaction.

The study fills a gap in the literature by highlighting that mobile banking users in Nairobi are increasingly raising their expectations, which appear to prioritize transaction speed above other traditional user experience elements. With the limitations posed in relation to generalization by convenience sampling, the study contributes to existing literature providing data-driven insights for financial institutions to enhance mobile banking performance and service delivery. The recommendations were given on enhancing speed of transactions, improving uptime of the system, and improving reliability of the back end in order to hit higher with customer satisfaction and customer retention.

CHAPTER 1

1.0 INTRODUCTION

1.0.1 Background Information

The explosion of mobile banking has transformed access to financial services around the globe and, in this manner, has greatly simplified the process which previously involved volumes of paperwork. In Kenya, the innovation effect has been profound due to a very high mobile private connection throughout the country and the active steps taken to ensure financial inclusion of the poor as well. For the first time in history, by 2023, Kenya recorded as many as 67 million mobile money users with electronic networks playing a crucial role in the country's financial system said by the Central Bank of Kenya, called CBK (Central Bank of Kenya, 2023). This fast growth can be credited to mobile banking for its convenience and ease of use in places such as Nairobi. It is facilitated by the implementation of digital technologies such as mobile money and other web apps.

1.0.2 Definition of Key Concepts

Mobile Banking: Mobile banking is one of the recent sectors of the banking industry and it stands for the movement of funds through mobile devices and the provision of asset services such as banking to the remote areas. Among the services provided include transferring money to mobile phones and paying bills, loans, investment management, and such which can all done by a mobile application or USSD.

Customer Satisfaction: On the other hand, through the lens of mobile banking, user satisfaction means how adequately the services meet or exceed customer expectations. The most crucial factors that this paper focuses on are the ease of use, the secure features, functionality, operational performance, and the quality of customer support.

The financial sector in Kenya has undergone a significant transformation since the arrival of mobile technology. In the case of Kenya, the biggest mobile banks are

getting more developed and advanced as they are introducing micro-loans, savings products, insurance, as well as agricultural finance plans (Ndirangu, 2022). Progress notwithstanding, there is a big gap in research when it comes to customer satisfaction within mobile banking in Nairobi.

Although studies conducted internationally offer valuable insights into the factors affecting the satisfaction of the customers involved in mobile banking, studies concentrating on Nairobi alone are still insufficient. Take, for example, the Ombongi and Long (2023) study, which underscores usability and security as significant in mobile banking satisfaction but fails to concentrate on Nairobi's unique market dynamics.

The primary research, for instance, carried out by Auta (2023) in Nigeria and Kim et al. (2022) in South Korea identifies the most critical aspects of mobile banking satisfaction in their respective regions. Meanwhile, the socio-economic and technical situations that exist in Nairobi are different from the ones of other regions, which is why specific studies for this exist.

Kenya's lower-middle-income economy, where mobile banking has thrived despite obstacles such economic inequality and infrastructure restrictions, stands in stark contrast to South Korea's strong technical infrastructure and high-income position (World Bank, 2021). Although Nigeria and Kenya are both classified as lower middle-income countries, direct comparisons are difficult due to Nigeria's larger economy and unique socioeconomic characteristics, such as its reliance on oil and more fragmented mobile banking landscape (GSMA, 2020). Further supporting the necessity for localized study is the fact that Nairobi's mobile banking model, which is fuelled by M-Pesa's success, differs from that of South Korea's integrated banking systems and Nigeria's emerging mobile banking industry. Nairobi is a melting pot of diverse nationalities and cultures, making it an ideal location for a comprehensive study. The city's rich blend of different backgrounds and perspectives provides a unique environment that reflects a wide range of experiences and behaviours, offering valuable insights for research.

Kenya has now become an extremely strong mobile banking nation with platforms such as M-Pesa joining the mainstream. Apart from that, the increased use has been

accompanied by the growing of the financial world. The result being that more people now have access to and use financial services especially unbanked people.

Nevertheless, the demand to grasp the roots of customer satisfaction in mobile banking in the Kenyan nation remains. Kenya's social-economic, cultural, and technological background, which differs from other countries, makes monitoring difficult in the industry impacting customer satisfaction in addition to the challenges associates with implementing mobile banking services. This research introduces some ideas that are very important to improving service delivery, customer experience, and customer loyalty among Kenyan banks.

Although countries like Nigeria and South Korea continuously develop and use mobile banking, people are yet not always satisfied with the services. It is the usage of mobile banking and customer satisfaction in these countries that may vary greatly and not those in Kenya. The Nigerian context is influenced by different economic challenges, regulatory environments, and levels of technological infrastructure. In Nigeria, the adoption of mobile banking is mostly due to inefficient infrastructural development and trust issues with banking (Eze, Chinedu-Eze, and Bello, 2018). This is not mainly the case in Kenya. Nevertheless, Nigeria shares some similarities with Kenya, such as a large unbanked population and the rapid adoption of mobile banking as a means of financial inclusion. Conversely, in South Korea, the strong level of technology diffusion and the support by the government are the key contributors to mobile banking, which contrasts greatly with the more market-drive policy in Kenya (Kim, Mirusmonov, & Lee, 2010). South Korea is a highly developed economy with a mature financial sector and advanced technological infrastructure, leading to different consumer expectations and levels of service sophistication.

Notwithstanding these, studies from Nigeria and South Korea have remained major resources for studies in Kenya. The similarities that exist in these fast-growing marketplaces and the quick embrace of mobile technologies in the two countries provide very good comparative material. Nigeria's experience offers lessons in overcoming barriers to mobile banking adoption in a developing economy, while South Korea's case provides benchmarks for service quality and customer satisfaction in a more advanced technological setting. By examining these diverse contexts, the study can identify best practices and potential pitfalls, allowing for a

more comprehensive understanding of how to enhance mobile banking services in Kenya. This comparative approach ensures that the findings are not only relevant locally but also informed by global trends and practices.

Even though some scholars have already done research on mobile banking services in Kenya, only a minimal number of them have gone deeper into the major banks in Nairobi. Njenga et al. (2023) argues that customer loyalty through mobile banking in Kenya is essential, but a concrete analysis of customer satisfaction being done across the main banks in Nairobi is not known.

This study fills a gap in the literature by providing a quantitative predictive analysis of customer satisfaction using Multiple Linear Regression (MLR). Previous studies, including Sigei, E. (2021), relied more on descriptive statistics as well as hypothesis testing using t-tests, which tether them closer to an associative approach rather than a predictive model. This study stands in stark contrast to the large body of evidence that defines usability and customer support as the founding pillars of customer satisfaction by refuting the previous belief that performance is the foremost determinant of satisfaction. This perspective represents a significant change for those working within a financial institution whose purpose is improvement in mobile banking services. It gives actionable recommendations for performance improvement rather than mere usability enhancement.

Filling this gap is essential for banks to improve their services and customer experiences. Nairobi, being the capital city of Kenya, is the financial nerve center of the country and the headquarters of many financial institutions and multinational companies forming a very important part of the country's economic landscape. It is the main source of Kenya's GDP and the hub of the city which has a diverse and economically active population. As a result, it is the top market for business activities; banking services is just one of them. Furthermore, the city's title as the chief regional center for trade and commerce also increases the need to study customer satisfaction in this regard, as Nairobi banks serve clients in a wide range of economic sectors with diverse financial needs and expectations. By contrast, smaller towns, although crucial, do not show the same economic activity and diversity, which means that Nairobi becomes a more strategic location for the examination of customer satisfaction in mobile banking (World Bank, 2020; Kenya National Bureau of Statistics, 2021).

It is the scope of this current study subject to detecting what values of customer satisfaction via mobile banking can be found in Nairobi, Kenya, in most banks that offer mobile banking so as to get a feel of the whole sector, across banks and the different experiences customer have had.

The board of directors have made a decree to create innovative mobile banking services to deliver tech-savvy users what they were yearning for as a customer. The user-friendliness of these platforms mainly depends on attributes such as speed, security, and problem solving as well as the backing up of the customer (Kim et al., 2022; Ombongi & Long, 2023).

1.1 Problem Statement

Mobile banking is viewed as a new wave that will revolutionize financial services through convenience, accessibility, and efficiency. However, despite general usage pitching at reasonably high levels, satisfaction with mobile banking apps remains a live research and topical debate. Earlier works, including Sigei, E. (2021) evaluation of end-user satisfaction for Nairobi County, have attempted to address usability, security, and functions. While these provide insight, they clearly are only descriptive studies and fail to put the spotlight on the overwhelming influence of performance indicators on customers' experiences.

The research by Sigei, E. (2021) observes that usability and security create user satisfaction but do not explain the interplay that weights these variables against system performance, which factors heavily into seamless banking experiences. Furthermore, Sigei, E. (2021) had no perception of how performance efficiency (speed, reliability, downtime) affects customer retention and loyalty. As the evolution of mobile banking services continues, it will be critical for financial institutions to know whether customers place unrelated weight on core performance metrics or usability attributes.

This study aims to fill in the void by taking a deviation from the traditional usability concept and consolidating on performance to form a prime driver of customer satisfaction. Through empirical data and statistical analysis, this research will illustrate in detail how customers prefer certain attributes from financial institutions to achieve user satisfaction and customer retention from mobile banking platforms.

1.2 Research Objectives

1. To assess the impact of usability, security, functionality, performance, and customer support on customer satisfaction.
2. To recommend a plan of action to improve the mobile banking services, which is derived from the empirical data.

1.3 Research Hypotheses

1. H_0: The availability of convenient tools and user interfaces to mobile banking enthusiasts affect users' satisfaction.
2. H_0: Computer software designing, and other security methods have correlative influences on customers' loyalty to mobile banking applications.
3. H_0: The capabilities/capability of the bank to provide a satisfactory service lies on the functionalities and not any other activity.
4. H_0: Performance indicators considerably impact customer satisfaction in mobile banking services.
5. H_0: Better support for the customer is one of the essential things in mobile banking that significantly arises to customer satisfaction.

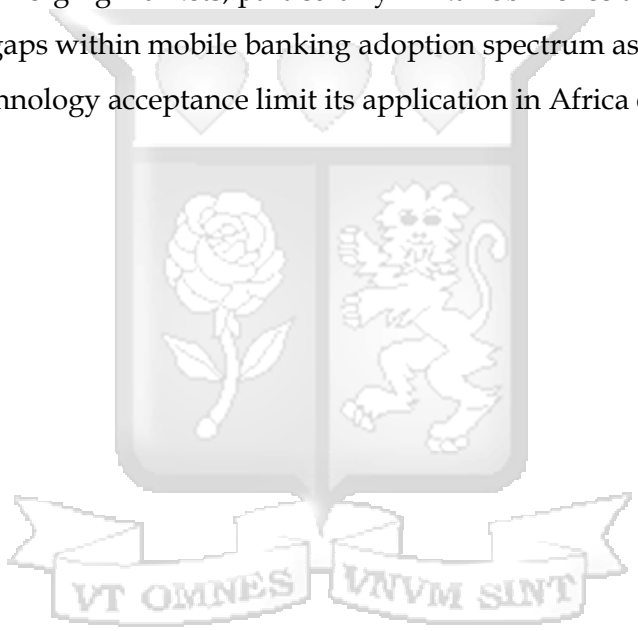
1.4 Research Question

1. How does the mobile banking usability, security, functionality, performance, and customer support, jointly address client satisfaction?
2. Deriving results from empirical data, how can banks in Nairobi improve the mobile banking services?

This research is expected to benefit various stakeholders. This includes financial institutions, where they will gain valuable insight into customer preferences ultimately reaching out more to the customer to ensure they are the main priority. The inferences realized from this research will help banks to personalize their

mobile banking techniques to the most extent which will, therefore, lead to higher consumer gratification and anchoring. Customers will be able to navigate more intuitively, securely, functionally, achieving high performance and getting better customer support because of being a part of mobile banking services, hence this will bring about a happier buyer in general therefore it should be the most vital obligation for the banks to be successful. As the user, you can have a fairly good experience of being a user of an improved mobile bank service, namely, financial transactions, which would ordinarily remain a dull and highly predictable experience if they were not.

This research also contributes to the body of knowledge on mobile banking dynamics in emerging markets, particularly in Nairobi hence this will allow a remedy into gaps within mobile banking adoption spectrum as several existing models of technology acceptance limit its application in Africa especially.



CHAPTER 2

2.0 LITERATURE REVIEW

2.1 Theoretical Framework

The theoretical framework presents a structural basis at the bottom of which sits customer satisfaction in mobile banking. This work is based on the existing theories that explicate the intersection of technology change and service quality and provide the best possible lens through which to investigate customer satisfaction metrics.

2.1.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989), is core in the comprehension of the users' awareness and the adoption of the most recent technology. The model states that if people think a technology is easy to use and that it is useful, then the users will accept it and be satisfied with it. In the case of mobile banking, perceived ease of use is the criteria by which users can easily navigate and operate the application, 'ease of use is the degree to which the user finds operation of the system to be user-friendly while usefulness is the degree to which the app performs users' tasks and meets their expectations' (Davis, 1989). Existing studies have endorsed the validity of TAM in mobile banking. For example, Kim et al. (2022) observed that consumers who perceive mobile banking applications to be user-friendly and beneficial more frequently express high satisfaction levels.

2.1.2 Service Quality (SERVQUAL) Model

In Kenya, where the use of mobile banking is increasing at a very high-rate Service Quality (a model designed to measure service quality across five dimensions: Tangibles, Reliability, Responsiveness, Assurance, and Empathy) can be used to explain why the users find easy mobility and functionality seems to be very important (Ndirangu, 2022).

The SERVQUAL model, introduced by Parasuraman, Zeithaml, and Berry (1988), is especially related to mobile banking since it emphasizes service quality and customer satisfaction. The SERVQUAL service assessment model has been widely used in financial services specifically bank transactions using a mobile phone reflecting that issues like speed service and assurance significantly affecting user perceptions and satisfaction (Parasuraman et al., 1988).Ombongi and Long (2023) appraised the application of SERVQUAL in the Kenyan situation and noted that aspects of the services such as the reliability of the user's data and the convenience of the customer service department are the major factors that lead to customer satisfaction in mobile banking.

2.1.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT), which was introduced by Venkatesh et.al. (2003) proposes to bring together different models and methodologies to describe technologies adoption and usage behavior. Major UTAUT constructs in the set include performance expectancy, effort expectancy, social influence, and facilitating conditions. The first derives from the concern of the technology utilization's perceived advantages to the users' point of view. The ease of use of one's mobile phone is of great essence to one person and relies on his social environment influence. Both the empowerment of the user, a positive effect, and satisfying of the user's needs concerning mobile downloading are the core of the UTAUT domain. They have been the object of the studies of Geebren and Jabbar (2021) which have shown that performance expectancy and effort expectancy are the main reasons why customers are happy with their mobile banking apps. With regard to the Kenyan market, which is the beacon of financial turn, this is highly suitable due to the fact that mobile banking is one of the most significant vehicles of financial inclusion.

2.2 Empirical Studies

2.2.1 Usability

Usability is the most important factor that is essential for the bank's mobile application and has a direct impact on the attitude of customers toward it because of affinity or attraction towards the use of the banking application functionally. According to the Technology Adoption Model (TAM), perceived ease of use is a significant factor in the technology selection process as well as the decision of satisfaction with its service (Davis, 1989). However, the prominent rationale for that is that people have been continuously looking into the issue of user interfacing technologies and the deployment of intuitive designs have been pointed out as having shown the highest use of this technology. For the South Korean market, Kim et al. (2022) made the most important finding that the way in which the mobile banking apps could be used had a significant relationship with the satisfaction of users who were pleased with the way the app was simple to navigate and use. In Kenya, mobile banking apps are required to provide services to a wide range of users, who many have little or no knowledge of technology, usability remains one of the most critical factors in these kinds of services (Ndirangu, 2022).

2.2.2 Security

The whole mobile banking system with financial transactions, which is one of the most important types of information, should be handled with high responsibility. SERVQUAL model states that assurance and safety are the key service quality dimensions (Parasuraman, Zeithaml, & Berry, 1988). Findings from the paper authored by Auta (2023) that was done in Nigeria confirm that perception of the security of the service is the most important factor that influences the customers' loyalty and satisfaction. The increased incidents of cyber-attacks in Kenya have made it necessary for the proper security measures to be in place, so that banks can still win the customers' trust (Ombongi & Long, 2023). Among such safety precautions includes the usage of encryption and authentication processes that directly influence customer confidence and the perceived integrity of the system.

2.2.3 Functionality

The functionality of a mobile banking app and its service range is one of the main factors that impact the satisfaction of the customer (Thawale & Muthee, 2017). Geebren and Jabbar (2021) emphasize that comprehensive functionality, such as the ability to perform various transactions and manage accounts, enhances user satisfaction. In Kenya, however, the mobile banking applications such as those in Equity Bank and KCB Bank give the users opportunities to get payments from their various accounts, customers can use the app to apply for a loan, settle their bills, and even make an investment (Ndirangu, 2022), and investments management.

2.2.4 Performance

Performance, such as the speed of the transaction and the reliability of the banks, are aspects that are very important for customer satisfaction. According to UTAUT performance expectancy is a technology usage of greatest importance (Venkatesh et al., 2003). The studies have proven that wrong performance or performance above the slow bottleneck can lead to reluctance to use and disappointment. The accurate and fast transaction processing that Kenyan banks practice makes it possible to achieve customer satisfaction and thus builds loyalty; users are the most relevant segments as they require the easy, fast, and always-on service (Kim et al., 2022).

2.2.5 Customer Support

The provision of super-responsive customer support channels is necessary to resolve issues hence keep customer satisfaction at high levels as per the SERVQUAL model wherein the responsiveness dimension is particularly applicable (Parasuraman et al., 1988). Effective customer support plays a pivotal role in ensuring customer satisfaction in mobile banking. Prompt resolution of user queries, responsive assistance in case of issues or complaints, and clear communication channels contribute to overall service satisfaction. Ombongi and Long (2023) found that banks investing in robust customer support infrastructure demonstrate their commitment to addressing customer needs and enhancing

satisfaction levels. Therefore, efficient and fast services is necessary for addressing user complaints and improving happy customers' attitude towards the bank (Njenga et al., 2023).

The literature reviewed is in connection with the goals of the research as it points to key factors—usability, security, functionality, performance, and customer support—in mobile banking, which greatly influence customer satisfaction. These points are very important in understanding customer experiences and coming up with methods for improving mobile banking services in Nairobi. With TAM, SERVQUAL, and UTAUT examples, this study aims to provide a comprehensive study of customer satisfaction in the mobile banking industry in Kenya.

2.3 Research Gap

Even though previous literature is insightful, the lacuna lies in localized research, mainly in Nairobi, Kenya. A few of the researches were conducted in different areas both socio-economically and geographically which may not portray the market in Kenya as it is. For example, while TAM and SERVQUAL have been used widely, there are a few studies conducted in Kenya. This study deals with this gap by making a thorough examination of specific factors that make customers happy with the main five banks in Nairobi. This study aims at the city individual level, which adds the necessary details that the institutions and decision-makers need for effective local growth.

2.4 Conceptual Framework

The framework of this study states the relationship between and the identified factors with the relationship model of usability, safety, functionality, performance, and customer support.

Hence, we identify the independent variables as the following.

Level of Usability - Affects customer satisfaction through user-friendly process such as quick and creative mobile banking application.

Security - Additionally, this module reduces the losses of customers by taking care of finance security.

Functionality - The utility of a system is a vital aspect leading to user satisfaction that is the reason why they are happy when they have different sets of function and information to select from.

Performance - The smoothness of the transaction and app reliability are the main components in the customer experience.

Customer Support - The role of customer service in the bank can be seen as its responsibility, as it is one of the focal points of the customer service issue as well as the satisfaction involving issues.

The dependent variable being *customer satisfaction*.

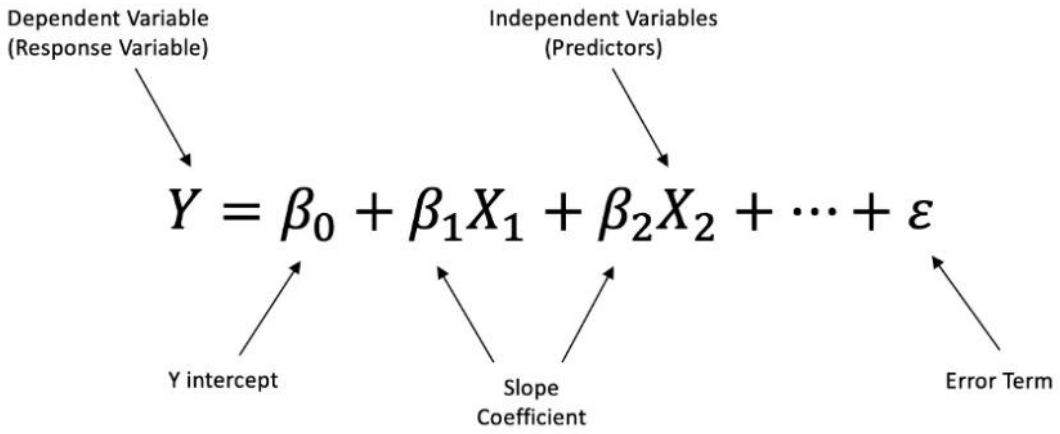
CHAPTER 3: METHODOLOGY

3.0 Research Design

The study utilizes a quantitative research design involving the application of Multiple Linear Regression (MLR) to explore customer satisfaction with mobile banking in Nairobi, Kenya eg., KCB Bank, Equity Bank, Co-operative Bank, Standard Chartered Bank, Absa Bank, National Bank of Kenya, NCBA Bank, DTB and others. MLR provides a proper analysis approach herein, considering the examination of a dependent variable (customer satisfaction) in relation to multiple independent variables (usability, security, functionality, performance, and customer support). The study quantifys the contributions of each factor to customer satisfaction, thereby identifying any significant predictors of customer satisfaction.

In various previous mobile banking research studies, MLR has been employed in determining key factors of customer satisfaction and loyalty. This technique has the potential of handling multiple predictors simultaneously, capturing how these factors influence the dependent variable through interaction (Hair et al., 2014; Tabachnick & Fidell, 2019). MLR fits well in testing the research hypotheses, whereby it yields coefficients indicating the strength and direction of each independent variable's relationship with the dependent variable.

MLR Formula



Below is a list of what each variable represents, as seen in the picture above:

- Y = the dependent or response variable. This is the variable you are looking to predict.

- B_0= This is the y-intercept, which is the value of y when all other parameters are set to 0 (independent variables and error term).

- B_1X_1= (B_1) is the coefficient of the first independent variable (X_1) in your model. This can be interpreted as the effect that changing the value of the independent variable has on the predicted y value, holding all else equal.

- "…" = the additional variables in the model.

- Ɛ = this is the model error. It explains how much variation there is in our prediction of y.

3.1 Population and Sampling

3.1.1 Population

The target population for this research comprises mobile banking users from the top five banks in Nairobi and other banks that offer mobile banking such as Ecobank, DTB Bank, NCBA Bank and National Bank of Kenya. These banks have substantial portions of customers utilizing mobile banking services and therefore furnish immense data for such a study.

3.1.2 Sample

Sample size for this study is 100 mobile banking users. This is sufficient and adequate to achieve statistical power, which in other terms said represent the population.

3.1.3 Sampling Technique and Procedure

Convenience sampling was used to select respondents. Respondents were therefore selected based on their availability and willingness to participate.

3.2 Data Collection

3.2.1 Data Collection Methods

Electronic questionnaires were employed to collect primary data in this study. The questionnaires, designed to reach out to a wide reach of the banks' mobile banking users, were delivered through email and social media platforms. This method is cost-effective, efficient, and convenient for respondents (Dillman et al., 2014).

3.2.2 Data Collection Instruments

The questionnaire measured the following constructs:

- **Usability**: Navigation and interface design.

- **Security**: Privacy policies and a sense of security guaranteed by the system.

- **Functionality**: Variety of services and types of transactions.

- **Performance**: Speed and reliability of the system.

- **Customer Support**: Speed for service and resolution.

- **Customer Satisfaction**: Overall satisfaction, likely recommendation, and loyalty.

Each construct was measured on a 5-point Likert scale. The questionnaire was pre-tested for validity and reliability so as to effectively capture meaningful data (Field, 2018).

3.3 Data Analysis

3.3.1 Analytical Techniques

The main analytical technique included applying Multiple Linear Regression (MLR). The analysis involved:

- **Model Specification**: Customer satisfaction as a dependent variable, and usability, security, functionality, performance, and customer support as independent variables.

- Model estimations: Estimation of the regression coefficients with the least squares method.

- Hypothesis Testing: Testing of the research hypotheses based on significance stemmed from p-values for each independent variable.

- Model fit assessment: The overall model fit was evaluated through R^2 and Adjusted R^2 which indicate the proportion of the variance in the customer satisfaction explained by predictors.

3.3.2 Pre-Estimation Tests

Before carrying out MLR, normality checks were performed to test if the dependent variable is normally distributed. Multicolliniarity checks used the Variance Inflation Factor (VIF) to assess multicollinearity among independent variables (Gujarati & Porter, 2009).

3.3.3 Post-Estimation Diagnostics

Upon estimation of the model, diagnostics for the model's residuals were conducted for the sake of validating the model assumptions:

- Linearity: The relationship between the predictors and the dependent variable is linear.

- Homoskedasticity: Constant variance of residuals.

- Independence: Independence of residuals.

- Normality of Residuals: Residuals follow a normal distribution (Montgomery et al., 2012).

The selection of MLR, highlighted by its ease of use in interpreting relationships among different predictors and customer satisfaction, gives insights into the actionable findings on factors influencing customer satisfaction significantly in mobile banking within banks in Nairobi.

CHAPTER 4: RESULTS AND ANALYSIS

4.1 Introduction

The objective of this chapter is therefore to present the results from data analysis and to contextualize those findings against the purpose and hypotheses of the study. It begun by justifying the appropriateness of the analytical methods used and provide detailed results of some pre-estimation tests and the procedures for analyzing the data. The chapter also assesses whether the research objectives were met and establish linkages to existing literature. This proper presentation gives clarity and a consistent interpretation of the influence of usability, security, functionality, performance, and customer support on customer satisfaction with the mobile banking services of banks in Nairobi.

Multiple Linear Regression (MLR) was selected as the primary analytical method for this study as it is able to find relationships between multiple predictors and a dependent variable. This chapter guarantees that data analysis follows the research methodologies outlined in Chapter 3, supporting the established hypotheses to develop actionable insights. In addition, the results are provided in such a manner so as to afford easy comparisons with previous studies, thus laying open the study's contribution to the existing body of knowledge.

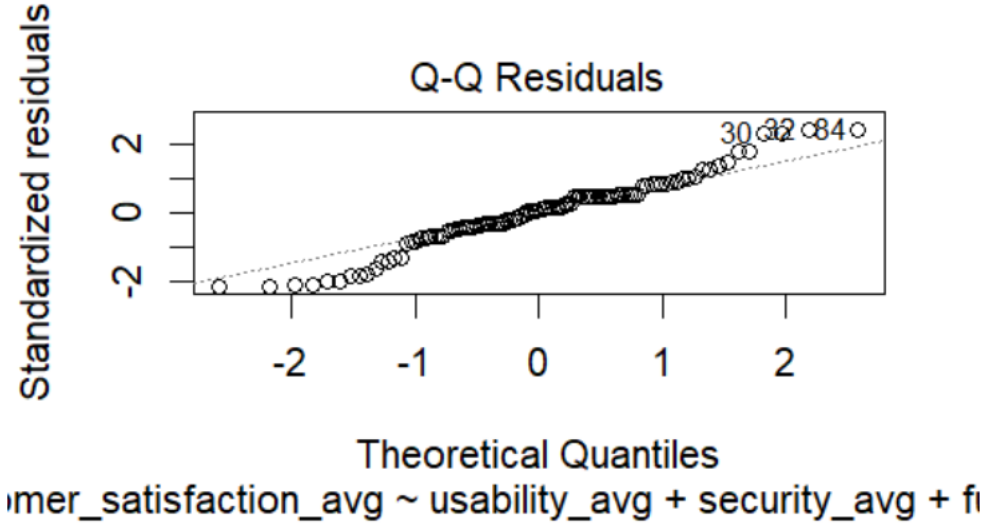
4.2 Appropriateness and Pre-Estimation of the Method

A multiple linear regression model was justified for this study due to its capability to quantify the degree of relationships between customer satisfaction (dependent variable) and the independent variables (usability, security, functionality, performance, and customer support). Another benefit is that multiple linear regression accomplishes multiple hypothesis tests simultaneously and estimates coefficient values for each variable.

This chapter further reaffirms that the methodology used is consistent with the objectives of the study and has adequately evidenced that the results represent how each factor contributed to customer satisfaction. Statistical assumptions underpinning MLR-that is, normality, independence, and homoscedasticity-were tested thoroughly in this case to check for model validity.

4.2.1 Normality

Figure 1



The Q-Q plot, shown in Figure 1, is used to assess normality in the residual errors of the regression model, where the x-axis is defined by the theoretical quantiles from a normally distributed variable, while the y-axis contains the standardized residuals. A reference line (dotted line) is superimposed on the plot, representing the expected distribution if the residuals were perfectly normal. The data are represented by open circles in the Q-Q plot against the reference line-the ideal normal distribution.

Residuals from the Q-Q plot appear to be normally distributed, clustering around the reference line, particularly in the midrange of the data. Along the tail, however, deviations attributed to possible outliers are found or slight deviations from normality in the data. This slight departure from normality, the study ensures the use the Box-Cox transformation to the dependent variable (customer satisfaction) to improve the normality of residuals and model fit.

This visual check, along with other diagnostics and plots, allows that the assumptions of linear regression hold (to a reasonable extent) in this case. The approximate normality of residuals tends to endorse the reliability of our finding from the regression analyses, where Performance does significantly impact Customer Satisfaction.

4.2.2 Homoscedasticity

Homoscedasticity was tested using the Breusch Pagan test

Figure 2

```
        studentized Breusch-Pagan test

data:  model_transformed
BP = 5.1168, df = 4, p-value = 0.2755
```

Above indicates that the p-value is greater than 0.05, hence there is no significant evidence of heteroscedasticity in the model.

4.2.3 Independence

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        Durbin-Watson test

data:  model_transformed
DW = 1.9298, p-value = 0.2363
alternative hypothesis: true
autocorrelation is greater than 0
```

The results of the Durbin Watson test checking for independence yield a value close to 2 (1.9298). This indicates that the residuals from the regression model are independent.

4.2.4 Multicollinearity

Multicollinearity was tested using the Variance inflation factor

Table 4.1

Variable	VIF	Interpretation
Usability_avg	2.27	Moderate correlation with other variables (no concern)
Security_avg	1.26	Low correlation with other variables (safe)

Functionality_avg	2.32	Moderate correlation with other variables (no concern)
Performance_avg	2.15	Moderate correlation with other variables (no concern)

VIF values below the threshold of 5, indicate no significant multicollinearity issues. Hence all variables are reasonably well-behaved in terms of inter-correlations.

4.2.5 Reliability Tests

Internal consistency of the questionnaire items was confirmed using Cronbach's alpha. The table below shows the results.

Table 4.2

Variable	**Cronbach's Alpha**	**Reliability Interpretation**
Usability	0.8819	Excellent reliability
Security	0.8548	Good reliability
Functionality	0.8018	Good reliability
Performance	0.7775	Acceptable reliability
Customer Support	0.8900	Excellent reliability

4.3 Data Analysis

4.3.1 Model Specification

The Multiple Linear Regression model was specified with customer satisfaction as the dependent variable and usability, performance, security, functionality, and customer support as the independent variables.

$$\boldsymbol{Customer\ Satisfaction} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1}(\boldsymbol{Usability}) + \boldsymbol{\beta_2}(\boldsymbol{Security}) + \boldsymbol{\beta_3}(\boldsymbol{Functionality}) + \boldsymbol{\beta_4}(\boldsymbol{Performance}) + \boldsymbol{\beta_5}(\boldsymbol{Customer\ Support}) + \boldsymbol{\epsilon}$$

4.3.2 Model Estimation

A Multiple Linear Regression (MLR) analysis was used to analyse the relationship between usability, security, functionality, and performance as independent variables and customer satisfaction as a dependent variable. The model estimates are described in the following table:

Table 4.3.3

Predictor	Coefficient (β)	Standard Error	t-Value	p-Value
(Intercept)	-0.25667	1.07254	-0.239	0.811
Usability_avg	0.27751	0.28332	0.979	0.330
Security_avg	-0.08236	0.24049	-0.342	0.733
Functionality_avg	0.07355	0.31562	0.223	0.816
Performance_avg	1.58780	0.28634	5.545	2.53e-07

4.4 Interpretation of Results

- The **intercept (β=-0.25667, p=0.811)** represents the average level of customer satisfaction against all independent variables being 0. The coefficient is not statistically significant **(*p*>0.05)**

- The positive coefficient for **usability (β=0.27751, p=0.330)** suggests that an increase in usability is associated with increases in customer satisfaction levels. However, this finding is not statistically significant **(*p*>0.05**).

- There was a statistically insignificant negative effect of **security (β=-0.08236, p=0.733)** on customer satisfaction noted.

- **Functionality (β=0.07355, p=0.816)** has a small positive coefficient, which suggests that it has negligible effects on customer satisfaction. A statistically insignificant effect is produced ($p>0.05$).

- In terms of the predictors, **performance (β=1.58780, p=2.53e-07)** has the largest significant effect in this model ($p<0.05$), indicating that performance matters in customer satisfaction. However, the effect is quite strong: for every increase of one unit on the scale of performance, an increase in customer satisfaction of roughly 0.635 would be anticipated.

Assuming a significance level of 0.05, the p-values associated with usability, security, and functionality indicate that these predictors are not statistically significant in this model. However, Performance attained a p-value of 2.53e-07, indicating high statistical significance and thus underscoring its critical role as a determinant of customer satisfaction. Hence, the results show that performance is probably the most important determinant of customer satisfaction and, therefore, should be targeted for product improvement.

Less Significant Predictors i.e Usability, security, and functionality do not show statistically significant effects on customer satisfaction in this model. However, they could be practically meaningful and, therefore, should not be set aside. These coefficients show the individual contribution of each predictor, and the statistical significance tests show which predictors have meaningful effects.

Despite not having yet confirmed these effects with statistical significance, inclusion of these predictors in the model tends to shed light on their potential capability to yield a meaningful effect on customer satisfaction.

4.5 Hypothesis Testing

Hypothesis	**t-Value**	**p-Value**	**Decision**
H_0: Usability - > Customer Satisfaction	0.979	0.330	Not Significant
H_0: Security - > Customer Satisfaction	-0.342	0.733	Not Significant
H_0: Functionality - > Customer Satisfaction	0.223	0.816	Not Significant
H_0: Performance - > Customer Satisfaction	5.545	2.53e-07	Significant

The testing of the hypotheses helped us ascertain which predictors significantly affected customer satisfaction. The findings indicated that usability (H1) affected customer satisfaction, but the relationship was not statistically significant (p=0.330); hence, rejection of the hypothesis. Similarly, security (H2) displayed a negative coefficient with a much larger p-value (p=0.733), suggesting no significant impact on customer satisfaction. Likewise, functionality (H3) was found to be insignificant (p=0.816), suggesting that the factor of functionality, per se, is not very important in

causing customer satisfaction. The only valid variable for this research was performance (H4), which appeared to fully influence customer satisfaction with a very valid p-value (p=2.53e-07). This leads to the conclusion that performance is one of the making or breaking factors for customer satisfaction in mobile banking, while usability, security, and functionality did not develop significant relationships. This is the clear reasoning that the banks should focus on steering mobile banking applications by upgrading their performance to improve customer experience and satisfaction effectively.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter discusses the research findings comprehensively in relation to the study objectives and hypotheses. It also draws conclusions from the analyses made, discusses practical implications, resulting in recommendations for the stakeholders involved. The purpose of this study was to propose an investigation into the various factors influencing customer satisfaction in mobile banking concerning a few of the banks in Nairobi. The discussion seeks simultaneously to relate its findings to earlier literature as a measure of the validity and generalization of the findings.

5.2 Discussion of Findings

5.2.1 Determinants of Customer Satisfaction

The study examined the influence of usability, security, functionality, performance, and customer support on customer satisfaction in mobile banking. Regression analysis showed that performance ($\beta = 1.58780$, $p < 0.001$) was the only statistically significant variable influencing customer satisfaction. This indicates that efficiency, speed and reliability in mobile banking services have a significant impact on user satisfaction. However, other selected variables including usability ($\beta=0.27751$, $p=0.330$), security ($\beta = -0.08236$, $p=0.733$), and functionality ($\beta=0.07355$, $p=0.816$) are not statistically significant, suggesting that these may not exercise a strong independent influence on customer satisfaction in so far as their influence is salient.

The hypothesis testing results indicate that, while usability, security, and functionality remain important to mobile banking in Nairobi, its customers value performance most. This agrees with past studies such as those by Kim et al. (2020) and Gupta & Arora (2021), which stress that mobile banking users prize speed and seamless operation over additional features.

5.3 Conclusion

The study provides critical insights into customer satisfaction determinants in mobile banking. Performance emerged to be the most pronounced predictor, thereby emphasizing the need for banks to improve system speed, reliability, and

uptime. Though usability, security, and functionality contribute to user experience, they did not assume any statistical significance in this regard. The findings augmented digital banking research and provided practical recommendations to financial services in developing customer satisfaction.

5.4 Recommendations

This study therefore aims for banks to apply the following recommendations so as to improve customer satisfaction in clients:

System Performance Improvement - Banks should invest in advanced technology to improve the stability, speed, and efficiency of their systems. The improvement of the system allows financial institutions to enable smoother transactions, reduce

User Experience Optimization - Although usability was statistically insignificant in this study, efforts to improve the quality of mobile banking applications can encourage engagements through a smooth and user-friendly interface, easing the tasks performed. A well-designed platform enhances accessibility, reduces transaction friction, and boosts overall user satisfaction.

Enhanced Cybersecurity Measures - While security did not exert direct influence on customer satisfaction, the stability of systems through strong cybersecurity features has continued to be important. This calls for banks to embrace state-of-the-art measures, like multi-factor authentication and real-time fraud detection, to protect customer data by establishing durable trust.

Continuous Customer Engagement - Financial institutions need to take a proactive approach in the collection and analysis of customer feedback. The banks will then be able to assess user needs and expectations repeatedly, streamline their mobile banking services, introduce innovations that are on-signal, and remain relevant in a fast-moving digital environment.

5.5 Limitations of the Study

Although this study puts forth extremely helpful insights, several shortcomings deserve to consider as listed below:

a) **Geographical limits**: The study purely based upon the banking sector of Nairobi restricts the findings from being generalized to other regions.

b) **Cross-sectional Study**: As data has been collected on a single occasion, there is no permissible base for judging how customer satisfaction has undergone any changes through time.

c) **Self-reported Data**: The use of self-reported surveys may introduce a bias in the form of overestimating or underestimating their satisfaction by the customers.

d) **Convenience Sampling:** The study acknowledges that convenience sampling may limit generalizability, as respondents may not fully represent the broader customer base of mobile banking users in Nairobi.

5.6 Suggestions for Future Research

For greater generalizability, other banking institutions in different jurisdictions shall be evaluated in the subject of future research. Longitudinal studies should enable a deeper understanding of evolving customer satisfaction. Besides, qualitative research involving interviews or focus groups may provide a deeper understanding of customer preferences.

5.7 Final Thoughts

The study identified performance as a significant determinant of customer satisfaction in mobile banking. Banks that adopt high-performance standards systems may witness improved customer retention and satisfaction. These recommendations can help financial institutions optimize their mobile banking

services and ensure upbeat customer relationships amidst an increasingly virtual financial milieu.

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