DIGITAL INNOVATIONS ADOPTION AND FINANCIAL PERFORMANCE OF MICROFINANCE BANKS IN KENYA

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DIGITAL INNOVATIONS ADOPTION AND FINANCIAL PERFORMANCE OF MICROFINANCE BANKS IN KENYA

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ABSTRACT

This research examined the effect of digital innovations adoption on financial performance of microfinance banks in Kenya. The specific objectives of the research were: to evaluate the effect of agency banking innovation, mobile banking innovation, ATM innovation, and EFT innovation adoption on the financial performance of microfinance banks in Kenya. The study was supported by the Financial Intermediation Theory, The Principal-agent Theory, Bank Focused Theory, and Economic Value-Added Theory. Descriptive as well as explanatory research design were exerted. The population under study was fourteen (14) microfinance banks licensed and operating in Kenya. The census method was employed as it allows studying all the units of observation and the data obtained was accurate and highly reliable. The study utilized secondary data collected using the panel data analysis method. Descriptive statistics, mean, mode, median, and inferential statistics like the multi-linear regression method were utilized for data analysis after which a normality, multicollinearity and heteroscedasticity tests were administered as a diagnosis to assert that the classical linear regression model the assumptions were violated to avoid bias, inefficient and inconsistent results. Frequency distribution tables were applied to present the result. The findings indicated that ATMs' innovations undoubtedly and notably affect financial performance; mobile banking positively but insignificantly affects financial performance; agency banking innovation significantly in a manner that positively affect financial performance; while electronic fund transfer positively affected financial performance of the MFBs in a significant manner. The research advocated that more automated teller machines outlets should be opened to allow raised patronage by customers, thus boosting the profitability of the banks. Management should device a means through which customers can transact on mobile banking platforms even without sophisticated phones in order to grow the number of mobile banking users. Through agency banking innovations, more point of sales outlets should be put up to boost the number of transactions by the MFBs in Kenya and lastly the microfinance banks should endeavor to strengthen their signals to allow free flow of transactions through the internet thus bringing in convenience consequently boosting the volume of transactions done per second hence high income.

Key Words: *Agency Banking Innovation, Mobile Banking Innovation, ATM Innovation, EFT innovation*

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resulting in an increased customer base and a diverse range of products and services offered. Mohamed Yunus in 1976 developed Grameen bank in Bangladesh with the key objective of revamping the livelihood of the locals through the provision of credit facilities and financial sustainability education. This has mostly been evidenced across the world as a similar goal to the many countries that have embraced and adopted the concept of microfinance banks including Africa, South America, Asia, and the UK solely to improve the living standards of poor citizens who had no link to financial support from the mainstream commercial banks. With the current trend in the 21st century, microfinance banks have been revolving to adopt the concept of financial inclusion. All through this period, microfinance banks have grown tremendously through the adoption of various digital innovations and service automation that has led to great competition (Carbo-Valverde, 2017).

Philippon (2020) observed that innovations in technology and business models have paved the way to growth in digital financial services aimed at cost reduction, increased process speed, transparency, security, and availability of more-tailor made financial services that can efficiently serve the poor at scale. A survey conducted by Justyna (2017) shows that microfinance banks in Europe are slow in the adoption of digitization with the majority at convergence, innovative and adaptive stages. From the survey findings, it was concluded that microfinance banks in Europe recognized the need for digitization of their processes and appreciate the value proposition that comes with it, some institutions are at the introduction stage of utilizing digital solutions, however, the application is slower.

The recent past has evidenced immense growth in the Kenyan finance industry both in width and depth which in return has stimulated competition and also the transformation of some of the microfinance institutions to banks (Mbogo & Ashika, 2011). Demirgüç-Kunt and Detragiache. (2018) discovered that a milestone has been made through digital payments, government regulations, and a new breakthrough in services provided through mobile phones and the internet. This shows that for microfinance banks to remain competitive and relevant, it is prudent to align their strategic objectives and goals towards digital innovations.

Banks industry's competition obviously via digital innovation takes advantage of customers' real time payment that enhances the movement of money through ATMs revolutionization. Furthermore, the employment of ATM networks impacts positively on coherence of banks service remittance in addition to profits (Mwangi, 2018). ATMs often reduce the price of transaction and time used by customers in both small and bigger banks thus, transforming the amount of customers' patronage and hence, the financial performance of banks. Therefore, transactions through ATM have curtailed level of physical contact between bankers and customers thereby reducing the spread of diseases. The benefits of ATM cards ease bankers' stress and also the cost of transactions with a high rate of banks profitability from customers' patronage (Kwamboka, 2018). Banks' ATM card rate of patronage will replace ATM innovation among Microfinance banks. ATM innovation was assed using level of investment in ATM Machines and number of ATM machines

Mobile banking denotes utilization of phones to enhance banking transactions. Michael and Mayer (2011) posited that mobile phone usage has boost banking transactions and has been existing in developed and developing countries over time and has also spreads to unbanked people rapidly today. The use of mobile banking services in a financial organization has remained the foremost driver of financial institutions' speedy development due to its connection to geographical spread and its less costly nature in mobile network effectiveness. Conversely, banks' services offered traditionally especially retail banking, unattainable by consumers in both rural and urban setups from an economic

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and geographical sphere (Ondenyo, 2018). The use of mobile banking offers users secured, fast and convenient transactions. Previously unbanked groups within the financial space currently have accessibility to mobile banking services which has translated informal transactions to positively impact the users and hence offering grounds for economic development to thrive (Forest, 2015). Mobile banking services to be quantified by the amount of individuals who use the services within the study location. Mobile banking innovation was assessed using the level of investment in mobile banking and number of transactions done per user.

The study employed ROA as a financial parameter in measuring the financial performance of microfinance banks. Ngumo, (2017), attested that the financial performance of a corporation is effectively measured through Return on asset ratio because it demonstrates the firms' efficiency in asset management in profit generation. In support, the way a firm's assets are managed depends on its operational efficiency which influences financial performance (Tarawneh, 2006). Without efficient and effective asset management, the attainments of optimum profitability are doubtful which can discourage shareholders from investing in such firms. Thus, the operational efficiency in asset management of any organization is critical to organizational financial stability. Return on assets reflects the effectiveness and efficiency of managers in utilizing the resources of the institutions, thus the choice of return on assets as the indicator to measure the MFBs' financial performance.

The performance of microfinance banks cut across different aspects of services and products delivery. Concerning this, Alam (2012) posited that the performance of microfinance banks is multifaceted which comprised of 4 different constituents among which are client satisfaction and products or service feat, customers-focused; market and financial performance, earnings per share manager, and cash-to-cash including the satisfaction of employees; likewise, firms' efficacy which include level of creativity, resource and production chain flexibility and market time. These activities' delivery is stimulated with the spread of digital innovation. However, Mwangi (2018) instituted that innovation in organizations and institutions positively and significantly influences Microfinance performance. Takahara, (2017) also established that digital innovation platforms provide significant opportunities for the delivery of monetary services and thus offer significant satisfaction to customers. Kithinji (2017) established the connection between digital banks strategy adoption and financial inclusion where there was a significant reliance on digital innovation to boost market share volume and to guarantee clientele base. Furthermore, the connection between the variables has been established by Kimotho (2016) within the context of financial institutions in Kenya where it absolutely was observed that monetary resources are important elements of digital innovations' adoption by MFBs.

Globally, microfinance thought was evident in the Asian country specifically Bangladesh from the Nobel Prize winner Mohammed Yunus in 1976. The microcredit bank was developed to be a channel aimed at upgrading the livelihoods of the locals through the provision of credit facilities and financial sustainability education (Mwangi, 2015).

Locally, MFBs are governed by the C.B.K under the Microfinance ACT, 2006. Section 4(2) of the C.B.K ACT provides for the licensing, regulating, and supervising financial institutions within their jurisdiction. Regulation of MFBs in Kenya solely is done under the Microfinance ACT of 2006 and Microfinance laws, 2008. The central bank of Kenya is mandated to create a spirited, efficient, stable, and sound microfinance environment through regulation and supervision. The microfinance legislation came into force in the year 2008 to supply a platform for the widening and deepening of access to financial services throughout African nations specifically the low- income ones.

Since the microfinance Act and regulations came to play there has been a tremendous turnaround in

the microfinance industry depicting noticeable growth and transformation. From the CBK concept paper on the review of microfinance legislation of March 2018, it has been witnessed that The Microfinance sector has shown vital growth since 2008. The number of authorized MFBs has fully grown to fourteen as of December 2021 spread across various counties all over Kenya namely Caritas M.F.B, Century M.F.B, Choice M.F.B, Daraja M.F.B, Faulu M.F.B, Kenya Women, Key M.F.B, Maisha M.F.B, Muungano M.F.B, Rafiki M.F.B, SMEP M.F.B, SUMAC M.F.B, Salaam M.F.B, and U&I M.F.B (CBK Bank supervision annual report publications for the period 2015 to 2021). Financial innovation has also been experienced in the industry

Statement of the Problem

The financial field space is changing at a high speed technologically. Many financial institutions have no choice but to evolve and embrace ways of service delivery to ensure customer satisfaction which has a direct impact on their profitability. Roldos (2006) alluded that one key aspect of growth can be seen through the financial performance of an institution in the competitive environment.

As evidenced from the financial outcomes in the fiscal period to December 2021, microfinance banks registered a spurn in performance from an amalgamated loss before tax of Ksh.877 million. This was lower from the performance evidenced on December 31, 2020, producing a loss before tax of Ksh. 2,240 million. The crumble profitability was immensely linked to competitiveness in innovation changes and hence resulted in a decrease of financial income by recording a ROA of 1% in 2015, -0.5% in 2016, -0.9% in 2017, -2% in 2018 and subsequently in 2019 it had been -0.4%, -3% in 2020 and then -1% within the year 2021. This has evidenced a declining trend in the overall ROA for microfinance despite heavily investing in the digital solutions. (CBK Bank supervision annual report publications for the period 2015 to 2021).

The study done by Onchong'a (2018) was aimed at determining the drivers of financial innovation in microfinance banks in Kenya and, it absolutely was exhibited that few factors in the financial industry contributed to the blossom depicted in the microfinance banks. Lack of financial inclusion, use of bank accounts, evolving of mobile money that supports informal financial arrangements, and bank lending that does not support inclusive growth are some of the factors that led to financial innovation. Atavachi (2013) studied how e-banking effects DTMs' financial performance in Kenya. The outcome relays that DTMs performance as estimated by ROA is explained by investment in technological advancements. It was concluded that e-banking and financial performance are negatively related.

As the prominence of digital innovation in third world countries including Kenya surges, this has necessitated the need for research on the subject. (Joseph, 2003). In as much as there is notable significance on digital innovations and wide descriptive literature, few studies are there to explain why financial institutions still struggle in making profits despite fully adopting various financial delivery channels (Victor Ekpu, 2015). This shows that not much research has been done on digital innovation and its overall impact on microfinance banks, the cost-benefit analysis of these innovations, and how the percentages of that innovation cost contribute to the overall Performance of microfinance banks.

Objectives of the Study

The main objective of the study was to establish the effect of digital innovations adoption on the financial performance of Microfinance Banks in Kenya. The specific objectives were:

- To determine the effect of ATM innovation adoption on the financial performance of microfinance banks in Kenya.
- To establish the effect of mobile banking innovation adoption on the financial performance of microfinance banks in Kenya.
- To establish the effect of agency banking innovation adoption on the financial performance of microfinance banks in Kenya.

- To assess the effect of EFT innovation adoption on the financial performance of microfinance banks in Kenya.

The study answered the following research questions

- How does ATM innovation adoption affect the financial performance of microfinance banks in Kenya?
- How does mobile banking innovation adoption affect the financial performance of microfinance banks in Kenya?
- What is the effect of agency banking innovation adoption on the financial performance of microfinance banks in Kenya?
- What is the effect of EFT innovation adoption on the financial performance of microfinance banks in Kenya**?**

LITERATURE REVIEW

Theoretical Literature

Financial Intermediation Theory

Diamond (1984), suggested the theory desiring to explain the mantle that financial institutions play in providing access to financial services between savers and spenders. Financial intermediation theory delineates the role of financial institutions in seeing through compensatory spending clientele and superfluity spending clients in the business space (Ndebbio, 2004). As a result of intermediation, financial institutions find it possible to develop and make available financial products conform to their customers' needs. This is achieved when these institutions gain higher returns at minimal costs.

Honohan et al (2008) observed that the transformation of financial buildout, innovations, sprouting and integrated income models in the financial sector are closely related and support financial inclusion and this leads inefficiency in resource allocation in the economy, and consequently creating comparative economic opportunities for individuals from relatively high- or low-income sectors

The concept of this theory has been used in literature reviews of various studies. Some include Gichuki and Jagongo (2017), Electronic-banking & Accessibility of Financial Services in Commercial Banks in Kenya, Dzombo (2018) in "Branchless Banking and Financial Performance of commercial banks in Kenya'', Financial intermediation theory is adopted to explain the independent variables, Agency-banking, and electronic-banking, and the constant financial performance of microfinance banks in Kenya. This theory emphasizes the need for microfinance banks to continue playing part in the intermediation of financial services for them to ameliorate their financial performance and increase profitability.

The Agency Theory

Ross and Mitnick (1973) came down with the theory of the principal-agent. The theory has been used to interrogate matters interconnecting commercial institutions and agents delegated to do their processed. The Agency Theory focuses on obtaining the most viable agreement that governs the relationship between the principal and agent through profit maximization and self-interest. Muli and Ochiri (2019) have used this theory in their study to demonstrate the effects of the supplier-retailer relationship in retail supermarkets and how the relationship can be utilized to manage the flow of inventory. Eisenhardt (1989) reviewed the agency theory to describe and indicate ways in which organizational researchers can use the theory's insights. The theory is used in appreciating endowment of agency banking innovations to the performance of MFBs.

Bank Focused Theory

This theory assumes that traditional financial institutions use modern, cheap service delivery platforms to provide services to their existing clients. These deliverables are in form of alternative channels that come in form of ATMs, Internet banking applications, or even mobile applications (Kapoor, 2010). The utilization of these alternative channels has enabled MFBs to provide a wider array of their services to customers without the need for

a branch. Dzombo (2018) used this theory to affirm that commercial banks use retail agents and unconventional low-cost channels to service to their existing clients. The theory has been utilized in this study to emphasize the use of the innovations in the electronic space in service delivery.

Economic Value-Added Theory

The EVA hypothesis was put forth by Stewart in the year 1982. The hypothesis measures an organization's performance with respect to residual wealth computed by subtracting capital costs from operating profit which is net of taxes. This is a model which has been considered as an optional model to CAPM employed in capital budgeting due to its attention on company's ability to generate and create wealth from an economic model point of view and not on accounting perspective (Abate et al, 2004). Adopted as an integrated financial system employed in deciding various corporate applications which comprised of the measurement of performance, shareholder value determination, and equity valuation (Hatfield, 2002). The hypothesis has been criticized as a financial fantasy unusable, applicable to only efficient markets (Chen & Dodd, 2002). Nevertheless, the hypothesis is useful in investigating microfinance banks' performance as it is efficient and flexible in the financial sector and markets.

Empirical Review

ATM innovation and Financial Performance

Atavachi (2013) studied electronic banking and financial performance. 9 DTMs were used in which descriptive design was adopted with the application of inferential statistics on the data got. Primary and secondary data was acquired and analyzed for the research. Observably, the whole of DTMs had applied electronic banking technologies where a negative outcome was shown between ATM numbers, and DTMs financial performance in Kenya. The study mainly was centralized on DTMs in Kenya contrary to this study which narrowed down on MFBs that are based in Kenya.

Fatoki and Ogutu (2019) investigated Effect of Kenya's electronic-banking on listed Commercial banks' financial performance. A quantitative design of the panel model was adopted. Using only 11 listed banks. The study utilized inferential, and descriptive tools to analyze data. The products of the study indicated a positive and strong association was observed between agency-banking, Mobile-banking, online-banking, and ATM banking with commercial banks' financial performance in Kenya. M-banking and listed commercial banks' financial performance strongly and positively correlated with each other. Individual commercial banks and agency banking are strongly positively related to financial performance. Online banking and individual commercial banks' financial performance portrayed a dim and practical interconnection. The study solely engrossed on Commercial Banks contrary to the current study whose stress is majorly put on Microfinance Banks in Kenya.

Mobile Banking innovation and Financial Performance

Atavachi (2013) on electronic banking and financial performance using 9 DTMs in Kenya used descriptive research design and inferential statistics on Secondary and Primary data obtained. Observably, mobile-banking and the financial performance of DTMs in Kenya have a negative relationship. Although the study touched on electronic banking, this study was stressed on microfinance banks in Kenya.

Sophie (2019) in Rwanda assessed the Automated Teller Machine impact on Kigali's commercial banks' financial performance. The study employed the binary logistic regression technique of analysis. Observable outcome indicated a crucial correlation exists connecting ATM transactions and the financial performance of the Kigali bank. Having considered Rwanda as a developing economy with a different regulatory framework, the previous study was on one commercial bank with the current study stressed microfinance banks in Kenya.

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In Cameroon, Doh (2020) investigated financial innovation effect on financial inclusion. The study employed trend analysis, regression and Pearson correlation on the secondary data obtained for the study. Using quarterly data for the period 2010 to 2019, data on the number of ATMs, deposit account numbers, the registered number of agent bankers, mobile money transaction numbers, and licensed number of deposits-taking microfinance banks was used. Using Pearson correlation and regression techniques of evaluation, mobile money transaction number and number of deposits taking microfinance banks positively affected financial inclusion while agent banking inversely affected financial inclusion. It was deduced that Financial Innovation crucially impacted on the level of financial inclusion. Having considered financial inclusion, the study was conducted in Cameroon, this study's area of coverage was pinned to Kenya with main focus on microfinance banks.

Agency banking innovation and Financial Performance

Argamo (2015) determined effect of Agency-banking on Chase bank's financial performance in Kenya for year 2014. The research employed descriptive design where specific objectives such as banking service accessibility, increased customer transactions, and affordable service via the agents was used. A population of 174 with 87 of the staff as the sample were engaged through a Semi-Structured Questionnaire at the banks' headquarter. Multivariate regression technique was employed with a positive and significant relationship witnessed as the study outcome. The conclusion from the study showed that bank service accessibility, customer transaction, and low cost of service positively affected Chase bank's financial performance. The previous study concerted on Chase bank of Kenya (a commercial bank), whist this study, put its attention on microfinance banks in Kenya.

Using sixteen banks in Kenya, Kambua (2015) studied agency bankings' effect on financial performance. A descriptive study design and multiple linear regression were adopted. Notably from observations, agency banking positively affects commercial banks' financial performance. A positive linkage was observed in the nexus between deposit volumes, withdrawals volume, and financial performance. Also, bank size definitely affected commercial banks' financial performance. Recommendation from the study noted that these banks should adopt agency-banking to improve their service delivery. This study used only sixteen commercial banks in Kenya while this research dwelled on Microfinance Banks in Kenya.

In Cameroon, Doh (2020) investigated financial innovation's effect on financial inclusion. The study employed trend analysis, regression, and Pearson correlation on the secondary data obtained for the study. Using quarterly data for the period 2010 to 2019, the data on number of ATMs, deposit account numbers, the registered number of agent bankers, mobile money transaction number and licensed number of deposits taking microfinance banks was used. Using Pearson correlation and regression techniques of evaluation, mobile money transaction number and number of deposits taking microfinance banks positively affected financial inclusion while agent banking inversely affected financial inclusion. Conclusion driven from the discussion asserted that financial innovation crucially affected the level of financial inclusion. Having considered financial inclusion, the study was conducted in Cameroon this study's geographical area of coverage is on the microfinance banks in Kenya.

EFT innovation and Financial Performance

Ogare (2013) investigated linkage between e-banking and Kenya's banks' performance. The explanatory variables include ATM count, credit cards and debit cards furnished to clients, number of POSs, M-banking utilization level, Online banking, and Electronic funds transfers, as e-banking components. Used Inferential and descriptive statistics. The outcome showed electronic fund transfers significantly affect the profitability of banks. Therefore, electronic funds transfer had a

significant effect in explaining profitability. The study was concerned about commercial banks while this study had its concentration on microfinance banks in Kenya.

Using cash receiving banks in Nigeria, Madugba, et al (2021) assessed how electronic banking impacts financial performance. Using ex-post factor and least square multiple regression model, the study considered specific objectives of Remittance, web banking, National EFT, automatic teller machine, E-bills pay, and point of sale cash receiving banks' financial performance in Nigeria for the period 2011 and 2017. Unveiling the products of the study, POS, ATM, and WEB banking had a significant inverse association with financial performance, while National EFT, E-bills pay, and REMITA showed a negligible practical link in Nigerian banks' financial performance. In conclusion, electronic payment channels positively affect the financial performance of Nigerian banks. Researcher's recommendations were that, there should be a cultivation to entice clients on the usage of National Electronic Fund Transfer and E-bills pay being the poorly most used platforms among customers.

Ogutu et al (2019) appraised the effect of Kenya's Electronic-banking on listed Commercial banks' financial performance. A quantitative design of the panel model was adopted. Using only 11 listed banks. The study utilized both descriptive and inferential methods to analyze data mobilized. The products of the study showed a positively strong association between agency-banking, M-banking, online banking, and ATM banking with registered commercial banks' financial performance in Kenya. M-banking and listed commercial banks' financial performance strongly and positively correlated with each other. Individual commercial banks and agency banking are strongly positively related to financial performance. Online banking and individual commercial banks' financial performance portrayed a dim and practical interconnection. The study was narrowed to Commercial Banks while this study was stressed on Kenya's microfinance banks.

Conceptual framework

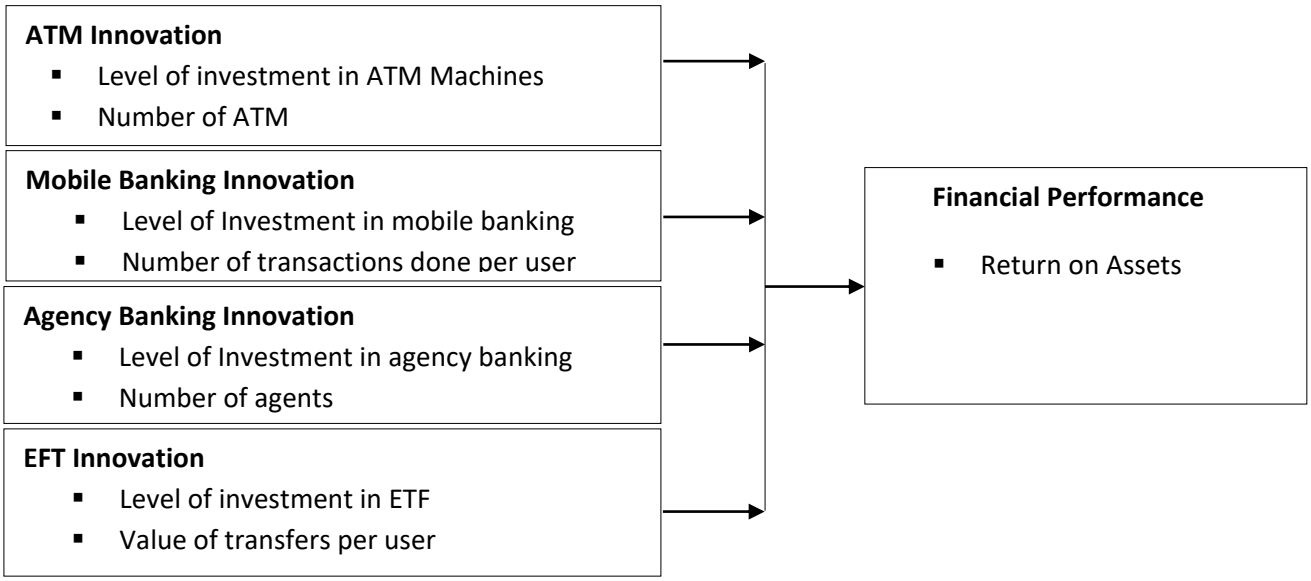

Figure 1: Conceptual Framework

Source: researcher (2023)

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METHODOLOGY

The study embraced both descriptive and explanatory research designs. The population under consideration in this study consists of all the fourteen MFBs in Kenya. The unit of observation included all Finance Managers and their assistants of the microfinance banks situated in Nairobi County. The study adopted census sampling technique by covering all the 14 MFBs and purposive sampling by focusing of finance mangers and their assistants. The study made use of primary data and secondary data. The main tool for primary data collection was via the use of a questionnaire designed to collect all the data on variables to be investigated and is to be administered through drop and pick. Secondary data from financial reports of the MFBs and quarterly returns to the Central Bank of Kenya Supervision Unit was also collected and utilized.

Internal consistency of the research instruments was confirmed by Cronbachs' co-efficient alpha.

FINDINGS AND DISCUSSION

Descriptive Analysis

This section covered an explanation of the survey goals. The analysis of the objectives is shown in this subsection, together with the standard deviation, mean and percentage of the participants' Likert scale answers from Kenyan microfinance institutions. On a 5-point Likert scale, where Strongly Disagree = 1, Disagree = 2, Moderately Agree = 3, Agree = 4, and Strongly Agree = 5, the composite mean was administered to draw conclusion.

ATM Innovation

Descriptive information about automated teller machines was recorded to show how many participants agree with the claims made about the ATM's innovation. Table 1. contains the mean, percentage, and standard deviation of the survey.

Table 1: Descriptive Statistics on ATM Innovation

N=335							
Statement	Percentage					Mean	Std. Deviation
	1	2	3	4	5		
ATMs operates for 24 hours 7 days	0.8	2.7	6.8	49.8	39.9	4.2548	.76151
The use of ATMs increases banks volume of withdrawals per day	0.8	0.4	10.6	46.8	41.4	4.2776	.72769
Banks have Automated Teller Machines available at customers' door step	1.1	1.1	8.0	56.7	33.1	4.1939	.72341
ATMs are easily used by customers	2.7	3.8	10.6	44.5	38.4	4.1217	.93308
Composite Mean = 4.212							
Composite standard deviation = 0.7864							

Source: Researcher (2023)

ATMs operates for 24 hours 7 days was the claim made by the researcher which has the responses distribution of SD (0.8%), D (2.7%), N (6.8%), A (49.9%) and SA (39.9%). The mean and standard deviation of the survey signified an average mean of 4.2548 and 0.7615. This hinted that many of the responders indicated that ATM operates 24/7 days. Noticeably, it was made known that the participants agreed that the use of ATMs increases banks volume of withdrawals per day as recorded by the distribution of the percentages of the responses 0.8%, 0.4%, 10.6%, 46.8% and 41.4% for SD, D, N, A, SA respectively. This is indicated via average mean, 4.2776 and 0.7276 standard deviation values.

The answers given by the participants demonstrated that banks have Automated Teller Machines available at customers' door step as revealed the skewed responses of the respondents 1.1%, 1.1%, 8.0%, 56.7% and 33.1% respectively. The affirmation of the responses is made known with mean, and standard deviation values of 4.1939 and 0.72341. Furthermore, the response distribution with regard to ATMs are easily used by customers showed that SD, D, N, A, and SA had 2.7%, 3.8%, 10.6%, 44.5% and 38.4%. Mean and standard deviation of 4.1217 and 0.93308 affirmed this claimed as authentic. Following from the percentage distribution of the responses, means and standard deviation of each item, the composite average mean and standard deviation was revealed to mean 4.212 with a resultant standard deviation value of 0.7864, therefore, the participants at the microfinance banks submits that ATM innovation significantly determined the financial performance of microfinance banks in Kenya.

Mobile Banking Innovation.

This part of the study included a descriptive examination of mobile banking innovation. Due to this, the replies description was completed, and the outcome is captured in Table 2.

Table 2: Descriptive Statistics on Mobile Banking Innovation

N = 335							
Statement	Percentage					Mean	Std. Deviation
	1	2	3	4	5		
Mobile banking increases banks efficiency and effectiveness in service delivery	1.9	3.4	17.1	46.4	31.2	4.0152	.89088
Customer prefers transacting business using mobile banking application than the bank branches	2.7	3.8	12.9	44.1	36.5	4.0798	.93963
Mobile banking increases banks' market share in value	2.7	2.3	11.4	46.0	37.6	4.1369	.89756
Banks have mobile applications readily available for customers	3.4	5.7	15.6	46.0	29.3	3.9202	.99103
Composite Mean = 4.0380							
Composite standard deviation = 0.9297							

Source: Researcher (2023)

Mobile banking innovation responses were detailed in Table 2. The outcome depicted that mobile banking increases banks proficiency in delivering its services as observed by the distribution of the respondent's percentages 1.9%, 3.4%, 17.1%, 46.4% and 31.2% for the key of the likert scale responses of SD, D, N, A, SA respectively. The alignment of the views is supported by the mean value of 4.0152 and 0.89088. In furtherance to the items documented to capture mobile banking innovation, it was alleged that customer prefers transacting business using mobile banking application than the bank branches as indicated by the SD, D, N, A and SA indicating that percentage of the responses 2.7%, 3.8%, 12.9%, 44.1% and 36.5%. The verification of the assertion was indicated in the mean score of 4.0798 and 0.93963 standard deviation.

The majority of participants agreed with the assertion that mobile banking enhances banks' market share in value, as displayed by the mean score of 4.1369 and standard deviation of 0.89756. The distribution of the responses further validates this claim to mean that SD, D, N, A, and SA had 2.7%, 2.3%, 11.4%, 46.0% and 37.6%. The participants agreed that banks have mobile applications readily available for customers as recognized by 3.92202 and 0.99103 values of average mean and standard deviations. The claim as recorded by the distribution of the responses showed that SD, D, N, A and SA had 3.4%, 5.7%,

15.6%, 46.0% and 29.3% as the responses. The compound mean of 4.0380 and a 0.9297 standard deviation highly agreed with the interviewees stability with the claim that mobile banking innovation plays a vital role in Kenya's microfinance banks in Kenya.

Agency Banking Innovation.

Statistics on participant responses to the agency banking innovation of the microfinance banks in Kenya were made available. Analysis's aftermaths were provided in Table 3. in a descriptive manner.

Table 3: Descriptive Statistics on Agency Banking Innovation

N = 335							
Statement	Percentage					Mean	Std. Deviation
	1	2	3	4	5		
Credit facilities of banks are provided through agency banking	0.4	4.6	14.8	54.8	25.5	4.0038	.78875
Agency banking is associated with high cost of transaction	1.5	3.0	19.8	52.9	22.8	3.9240	.82536
Agency banking increase customer accessibility to banks' products	1.9	8.0	19.8	44.9	25.5	3.8403	.95967
Banks generates more income from agency banking	2.3	3.0	16.0	47.1	31.6	4.0266	.89701
Composite Mean = 3.9486							
Composite standard deviation = 0.8676							

Source: Researcher (2023)

Regarding the assertion, there was widespread agreement that credit facilities of banks are provided through agency banking as exposed by 4.0038 mean and 0.78875 standard deviation. The percentages of the response further this claim with SD, D, N, A, SA which has 0.45, 4.65, 14.8%, 54.8% and 25.5% respectively. With regard to the claim that agency banking is associated with high cost of transaction, the interviewees indicated that 1.5%, 3%, 19.8%, 52.9% and 22.8% responses distributed across SD, D, N, A and SA. The affirmation of these responses showed a mean of 3.9240 and standard deviation of 0.82536.

Agency banking increase customer accessibility to banks' products was approved by the respondents as noted by the 3.8403 mean value and 0.95967 standard deviation. The furtherance of the responses showed that 1.9%, 8%, 19.8%, 44.9% and 25.5% were affiliated to SD, D, N, A, and SA. In line with the statement that banks generate more income from agency banking, 2.3%, 3%, 16%, 47.1% and 31.6% of the responses were distributed across SD, D, N, D and SA respectively. The participants authorized strongly owing to the composite mean and standard deviation of 3.9486 and 0.8676. The implication of this is that agency banking effectively determines the financial performance of microfinance banks in Kenya.

Electronic Fund Transfer Innovation

Furthermore, recorded was information on electronic fund transfer innovation at Kenyan microfinance institutions. As a result, the descriptive analysis of the electronic fund transfer innovation was conducted, and outcome displayed in Table 4.

Table 4: Descriptive Statistics on Electronic Fund Transfer Innovation

N = 335

Statement	N	Percentage					Mean	Std. Deviation
		1	2	3	4	5		
EFT expands the number of customers' transactions in a month		0.8	3.0	13.7	50.2	32.2	4.1027	.80131
EFT increases efficiency and convenience in banks operations		0.8	3.0	17.1	49.8	29.3	4.0380	.80934
Banks have electronic fund transfer infrastructures working for 24 hours daily		1.9	3.8	17.1	47.1	30.0	3.9962	.89314
Loans are been paid through EFT platforms of the banks		2.3	1.9	24.0	49.8	22.1	3.8745	.85350

Composite Mean = 4.0028
Composite standard deviation = 0.8393

Source: researcher (2023)

As verified in Table 4, the respondents at the microfinance banks in Kenya agreed that banks have electronic fund transfer infrastructures working for 24 hours daily. The distribution of the responses which showed 1.9%, 3.9%, 17.1%, 47.1% and 30% to SD, D, N, A and SA was publicized by 3.9962 mean and 0.89314 standard deviation. EFT expands the number of customers' transactions in a month was settled on by a pack of participants in the area of the study depicted by the mean of 4.1027, and Std deviation of 0.80131. The percentage distribution noted that 0.8%, 3%, 13.7%, 50.2% and 32.2% were the distribution of the options responses based on SD, D, N, A and SA.

As highlighted by a mean value of 4.0380 and standard deviation of 0.80934, EFT increases efficiency and convenience in banks operations. The participants share of the likert indicated that SD had 0.8%, D had 3%, N with 17.1%, 49.8% is with A while SA had 29.3%. Loans are being paid through EFT platforms of the banks as signified by 3.8745 average mean score and 0.85350 standard deviation meaning that SD, D, N, A and SA had responses distribution of 2.3%, 1.9%, 24%, 49.8% and 22.1%. The validity of the responders' viewpoint was additionally captured by the composite mean and standard deviation values of 3.8745 and 0.85350 singly. The responses were tandem with the fact that electronic fund transfer innovation influences the financial performance of microfinance banks in Kenya.

Financial Performance of MFBs in Kenya.

Descriptive data on financial performance of microfinance institutions were undertaken. Table 5 included the study's findings as a result.

Table 5: Descriptive Statistics on Financial Performance

N = 335							
Statement	N	Percentage					Mean	Std. Deviation
		1	2	3	4	5		
Efficiency in the provision of services improves the banks returns on assets		8.7	7.6	9.9	39.2	34.6	3.8327	1.23040
Adoption of technology has increased the returns on assets of the bank		4.2	10.6	20.9	42.2	22.1	3.6730	1.06269
Interest paid to shareholders in the banks improve as a result of digital		1.1	4.9	17.5	52.1	24.3	3.9354	.84686
Shareholders equity in the banks has improved as a result of digital innovation		4.9	6.5	18.3	49.4	20.9	3.7490	1.01785
Composite Mean = 3.7975								
Composite standard deviation = 1.0394								

Source: Researcher (2023)

Table 5. indicated that the bulk of the participants concurred with the fact that efficiency in the provision of services improves the banks returns on assets as evidenced by the mean value of 3.8327 and standard deviation of 1.23040. In regards to whether there is adoption of technology has increased the returns on assets of the bank, the interviewees agreed with the sentiments as depicted by the mean and standard deviation of 3.6730 and 1.06269 singly. The mean and standard deviation of 3.9354 and 0.84686 signified the participants' concurrence that interest paid to shareholders in the banks improve as a result of digital. Additionally, the respondents ascertained that shareholder's equity in the banks has improved as a result of digital innovation as illustrated by the mean and standard deviation of 3.7490 and 1.01785. Therefore, a compound mean of 3.7975 was designated implying the respondent's response to financial performance of microfinance banks in Kenya.

Inferential Analysis

To reach surmise regarding the study problem, inferential statistics was employed along with several other regression frameworks. The evaluation was finished in line with the study question and target that were specified.

Normality Test

Output of the Kolmogorov Smirnov, and Shapiro Wilk tests were shown in 4.7 to assess whether the model's output was normal. The variables' non-significant probability values illustrated their conventional normalcy during the scrutiny of the study's data. Normality is shown by the probability value of $z > 0.05$ p-value unless it is not, as shown in Table 6.

Table 6: Normality Test Results

Variable	Statistic	Df	Sig.	Statistic	Df	Sig.
Financial Performance	0.129	335	0.407	0.382	335	0.567
ATM Innovation	0.216	335	0.647	0.789	335	0.459
Mobile Banking	0.230	335	0.873	0.798	335	0.126
Agency Banking	0.234	335	0.868	0.861	335	0.436
EFT Innovation	0.127	335	0.568	0.879	335	0.521

Source: Researcher (2023)

The validity of the result of the normality test was evaluated using the Shapiro Wilk and Kolmogorov Smirnov tests. The review of the tests' results demonstrates that the data was normally

distributed. The probability values that are greater than 0.05 significance level served as additional confirmation to the outcome. The normal distribution null hypothesis was accepted in this situation.

Heteroscedasticity Test

To ascertain the stable state of residuals across observations in the model, Heteroscedasticity Test was investigated. To determine correlation across observations of the error terms, the model was evaluated. The residuals are homoscedastic, as per the null hypothesis. A p-value of >0.05, nevertheless, indicates the presence of constant variance. Table 7. displays output of the test for heteroscedasticity.

Table 7: Heteroscedasticity Test Results

Breusch	**Pagan**	
$Chi^2(15)$	=	1.05
Prob> Chi^2	=	0.4308

Source: Researcher (2023)

Given the results in Table 7, the null hypothesis, which affirms, the residuals are constant across all observations, is supported because the output exhibited an exceptional value of 0.4308 which exceeds the 0.05 significance level.

Multicollinearity Test

The degree of connection among the explanatory variables in the model was appraised for multicollinearity using the Variance Inflation Factor (V.I.F). To test whether multicollinearity existed in the model, a threshold of 5 was utilized. VIF readings greater than 5 show collinearity, but those lower than that showed no significant collinearity.

Table 8: Variance Inflation Factors Results

Model		**Collinearity Statistics**	
		Tolerance	VIF
1	ATM Innovation	.694	1.441
	Mobile Banking	.782	1.279
	Agency Banking	.675	1.482
	EFT Innovation	.743	1.345

Source: Researcher (2023)

The survey's data did not have any significant collinearity, as shown in Table 8. The output depicted that the predictor variables (ATM innovation = 1.441, Mobile banking = 1.279, Agency Banking = 1.482, and EFT innovation = 1.345) had VIF values under 5, which indicated that collinearity was insignificant in the model and did not skew the estimated model parameters.

Correlation Analysis

This part of the report summarizes the data of the Pearson correlation. As a nutshell, the results of the research are summarized in Table 9.

Table 9: Correlation Results

		Financial Performance	ATM	Mobile Banking	Agency Banking	EFT
Financial Performance	Pearson Correlation	1	.332**	.212**	.381**	.311**
	Sig. (2-tailed)		.000	.000	.000	.000
ATM	Pearson Correlation	.332**	1	.360**	.504**	.340**
	Sig. (2-tailed)	.000		.000	.000	.000
Mobile Banking	Pearson Correlation	.212**	.360**	1	.315**	.394**
	Sig. (2-tailed)	.000	.000		.000	.000
Agency Banking	Pearson Correlation	.381**	.504**	.315**	1	.415**
	Sig. (2-tailed)	.000	.000	.000		.000
EFT	Pearson Correlation	.311**	.340**	.394**	.415**	1
	Sig. (2-tailed)	.000	.000	.000	.000	

****. Correlation is significant at the 0.01 level (2-tailed).**

Source: Researcher (2023)

Table 9. shows the correlation analysis of the variables used in the study. ATM, mobile banking, agency banking and electronic fund transfer (EFT) innovations all recorded momentous linkage with the financial performance of the microfinance banks in Kenya. This is evident on the positive coefficient of 0.332 (0.000), 0.212 (0.000), 0.381 (0.000) and 0.311 (0.000) that are accompanied by the p-values in parenthesis. Noting from the observation of the research explanatory variables in the study area, enhancing the financial performance of microfinance banks in Kenya is associated with the introduction of digital innovation such as ATM, mobile banking, agency banking and EFT innovations, respectively.

Regression Analysis

The effect of digital innovations on the financial performance of microfinance banks in Kenya was examined in this section to arrive at the changes that occurs in financial performance due to digital innovation components. Table 10. displayed summary of the model which comprised of the R coefficient, R-square, and the R-square adjusted.

Table 10: Model Summary

Model	R	R Square	Adjusted R Square
1	.739[a]	.692	.683

Source: Researcher (2023)

Table 10. displayed the outcome of the coefficient correlation and that of determination 0.739 indicating that digital innovation has high association with financial performance of microfinance banks in Kenya. The coefficient of determination 0.692 observed that digital innovation which comprised of ATM, mobile banking, agency banking and electronic fund transfer innovations determine the changes that occurs in the financial performance of microfinance banks in Kenya. With this, it is noted that 69.2% variation in microfinance banks' financial performance is attributed to digital innovation technology employed in the banks. With this, different factors play out a role in the variation of financial performance to the tune of 30.8% as captured by the stochastic variable.

Multiple Regression Analysis

The intention of the study was to evaluate the relevance of each predictor's contribution to the dependent variable. The direct effect of the independent variables on the dependent variables was determined by the review of the Multiple Regression analysis. Table 11. displays the conclusions of the regression analysis.

Table 11: Regression Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.042	.201		-.210	.834
	ATM	.229	.087	.155	2.645	.009
	MB	.033	.082	.022	.404	.687
	AB	.306	.078	.233	3.927	.000
	EFT	.247	.092	.152	2.697	.007

Source: Researcher (2023)

The outcome of the direct effect regression output was fitted into the regression model as depicted thus;

$$Y = -0.042 + 0.229X_1 + 0.033X_2 + 0.306X_3 + 0.247X_4 + \varepsilon$$

Analysis of Variance (ANOVA)

The measurement of the joint significance of the variables that explains the behaviours of the dependent variable is documented in this section. The model's thrust was confirmed through analysis of variance, and the outputs are shown in Table 12.

Table 12: Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38.489	4	9.622	19.717	.000[b]
	Residual	161.639	331	.488		
	Total	200.128	335			

Source: Researchers (2023)

The results of the analysis of variance, as shown in 12, showed that all the explanatory variables, as well as the innovations in ATM, mobile banking, Agency banking, and Electronic Fund Transfer, have a remarkable effect on the financial performance of MFBs in Kenya. The probability of 0.000 and the F value of 19.717 both point to the rarity of the model in spelling out the behaviours of the microfinance banks' finance performance. This implies that the financial performance of Microfinance Banks in Kenya is swayed by all of the explanatory factors (ATM, mobile banking, agency banking, and electronic fund transfer innovations).

CONCLUSION

Digital innovations adoption which includes ATMs, Mobile-banking, agency banking and Electronic Fund Transfer innovation all had positive effect on the financial performance of microfinance banks in Kenya as used in the investigation. The study concluded that ATM innovation in particular had a positive and substantial effect on Kenya's Microfinance banks' financial performance. Therefore, ATM innovation plays a major role in the improvement of microfinance banks' financial performance in Kenya as it has reduced the long queues found in banks.

The survey found that the introduction of mobile banking had a positive and unimportant effect on the financial performance of Kenya's microfinance banks. As a result, the development of mobile banking does not significantly affect how Kenyan Microfinance Banks operate financially. Thus, the study concludes that although mobile banking innovation has the potential of enhancing Kenya's microfinance banks' financial performance, it has been irrelevant over within the microfinance banks in Kenya.

For the third research goal, agency banking innovation significantly and favorably impacted the financial performance of Kenya's microfinance banks. In this regard, agency banking innovation continues to play a significant role in determining the financial performance of Kenya's Microfinance Banks. In conclusion, the financial performance of microfinance banks in Kenya continues to be significantly influenced by their financial performance.

It was discovered that electronic fund transfer innovation had positive and significant effect on the financial performance of Kenya's microfinance banks. Electronic fund transfer innovation plays a significant role in the determination of Kenya's microfinance banks' financial performance. Microfinance banks need to strengthen the utilization of electronic fund transfers innovation by ensuring that their network is regularly functional.

RECOMMENDATIONS

Concerning the effect of digital technologies adoption on the financial performance of Kenyan Microfinance Banks, suggestions are provided. Based on the outcome of the study which showed a positive and significant effect of automated teller machine innovation on Kenya's microfinance banks' financial performance, the research recommends that more ATM outlets should be open to improve the financial performance of the MFBs. This would allow for high patronage by customers, thus boosting the profitability of the banks.

Mobile banking innovation showcase a positive yet an insignificant effect on microfinance banks financial performance. Resulting from this outcome, the management of these banks should device a means through which those customers of the banks can transact even without sophisticated phones. This is would result in a significant improvement in the number of customers' patronage thus, boosting banks financial performance.

Agency banking innovation demonstrated a positive and significant effect on the financial performance of microfinance banks in Kenya. Owning to his outcome, the advice that more point of sale services should be encourage by the mother banks to boost the number of transactions by the microfinance banks in Kenya.

Due to the revelation of a positive and important effect of electronic fund transfer innovation on financial performance, the research recommend that the management of the banks should strengthen the signal of the banks' network to allow for free flow of banking transactions over the internet as this brings about convenience on the part of the customers hence, boosting financial performance of the banks.

Suggestions for Future Research

This study focused on how adoption of digital technologies affected Kenya's microfinance banks' financial performance. The study's findings demonstrated that additional research can be done to ascertain the insignificant effect of mobile banking innovation on the financial performance of microfinance banks. It is possible to do additional study to ascertain how adoption of digital innovations affects SACCOs' financial performance.

REFERENCES

Takahara, K., Kohinata, N., Iwata, M. & Yoshikawa, K. (2017). Digital Innovation Platform and Its Application for Financial Services. *Hitachi Review, 66*(1), 69-75.

Tarawneh, M. (2006). A comparison of financial performance in the banking sector: Some Evidence from Omani Commercial Banks*. International Research Journal of Finance and Economics (3): 1-5, 2006.*

Kwamboka, O. V. (2018). The Effects of Financial Innovations on the Performance of Microfinance Institutions in Kenya for the Period 2011-2016. Master's thesis at United States International University – Africa, Kenya.

Kimotho, J. W. (2016). Determinants of digital innovations adoption by financial institutions in Kenya. *Unpublished MBA Project,* University of Nairobi, Kenya.

Ngumo, K. S., Collins, K. W. & David, S. H. (2017). Determinants of Financial Performance of Microfinance Banks in Kenya. *Research Journal of Finance and Accounting, 8*(16), 1-8.

Kithinji, E. (2017). Effect of Digital Strategy of Financial Inclusion among Commercial Banks in Kenya. *Unpublished MBA Project,* University of Nairobi, Kenya.

Mwangi, D. K. (2018). Financial Innovation And Performance Of Microfinance Banks In Nairobi City County Kenya. *Unpublished MBA Project,* University of Kenyatta, Kenya.

Kambua, D. B. (2015). The Effect of Agency Banking on Financial Performance of Commercial Banks in Kenya. *Unpublished MBA Project,* University of Nairobi, Kenya.