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DIGITAL BANKING CHANNELS AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN MOMBASA COUNTY, KENYA

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ABSTRACT

The purpose of the study was to investigate the effect of digital banking channels on the financial performance of commercial banks in Mombasa County. The digital banking channel constructs included digital cards, internet banking, mobile wallets, and mobile loan apps and their effect on financial performance. The study was anchored on financial intermediation theory, transaction cost innovation theory, and innovation diffusion theory. A cross-sectional descriptive survey research design was adopted. The target population was all commercial bank branches operating in Mombasa County, with branch managers as the unit of observation. Stratified random sampling was applied, and Yamane formula was used to arrive at a sample size of 84 respondents. Primary data were collected using research questionnaires, while secondary data were obtained through a data collection sheet. A pilot test was conducted to establish validity and reliability. Data analysis involved descriptive and inferential statistics using Statistical Package for Social Science (SPSS), and results were presented in frequency and descriptive tables. The findings revealed that all four digital banking channels; digital cards, internet banking, mobile wallets, and mobile loan apps were positively and significantly related to the financial performance of commercial banks. Regression analysis showed that digital cards had the strongest effect on financial performance, followed by mobile loan apps, internet banking, and mobile wallets. Collectively, the four constructs explained 62.9% of the variation in financial performance. The study concluded that the adoption of digital banking innovations enhances profitability, customer growth, cost reduction, and market expansion. It was concluded that digital cards improve service delivery and accessibility, internet banking enhances efficiency and customer trust, mobile wallets expand financial inclusion, and mobile loan apps diversify revenue streams. The study recommended that commercial banks should continue strengthening their digital card services by expanding acceptance points and security features; invest in secure and user-friendly internet banking platforms; enhance mobile wallet functionalities, including offline access and bill payment services; and strengthen mobile loan apps by integrating them with authentication systems and diversifying credit products.

Key Words: *Digital Banking Channels; Digital Cards, Internet Banking, Mobile Wallets, Mobile Loan Apps*

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INTRODUCTION

An estimated 1.7 billion individuals worldwide are underbanked, 2.3 billion adults are financially excluded, and small and medium-sized firms have difficulty accessing the financial system. Access to banking is improving in emerging nations, as seen by the approximately 85% of digital platforms that the digital banking sector has developed in recent years (Van Der Boor, 2017). Evidence indicates that digital payments in particular have grown, which has accelerated digital financial inclusion, according to Global Findex (2021). According to a 2016 McKinsey Global Institute analysis, the productivity gains of governments and enterprises in digital finance alone could increase the yearly GDP of all emerging nations by $3.7 trillion by 2025.

The e-commerce site Mercado Libre allowed Argentinean borrowers who otherwise would not have had access to bank credit to obtain credit (Frost, 2019). The publicly run Billeteria Móvil (BIM) platform in Peru has enabled interoperability across e-money providers, facilitating government transfers to unofficial employees and bridging inclusion gaps in remote areas (Del Carpio Ponce, 2018).

In China, online buying and digital payments are examples of household consumption practices that have accelerated the expansion of financial inclusion in China (Li, Wu, & Xiao, 2020). Digital platforms have significantly expanded financial inclusion with the support of laws and public policies (Hua and Huang, 2020; Luohan Academy, 2019). Through their parent companies' social media and e-commerce platforms, Ant Group (which has 1.3 billion users) and Tencent (which has 900 million users) offer hundreds of millions of customers affordable credit, insurance, savings, and payment options. According to empirical statistics on lending, big tech lending has helped to increase small firms' access to financing and lessen local credit supply frictions (Hau, 2020). The requirement for expensive collateral has also decreased due to big tech credit, which has also changed how lending and asset values are correlated (Gambacortas, 2020).

Africa's extensive use of mobile money platforms has led to a growing ecosystem of Fintech platforms and existing financial institutions using mobile money networks to reach their customers (CCAF, 2020). ITU's 2016 Focus Group study found that many poor countries still struggle to encourage merchants to accept digital payments, despite the benefits of digital financial services.

Commercial banks in Kenya have encountered challenges while trying to expand their infrastructure to more remote areas (Nery, 2021). These issues stem from the expenses and overall viability of these projects, which have an impact on their financial results. Nonetheless, many commercial banks have adopted technology in an effort to improve their operations. Because it offered banking services to people across the nation without requiring banking infrastructure, M-Pesa, a digital banking service run by a telecommunications business, rose to prominence in the late 2000s (Kingiri & Fu, 2019). Commercial banks are expanding their operations into digital banking nationwide as a result of mobile banking's success. Kiragu (2017) indicated that embracing banking digitally has allowed commercial banks to increase their transactions.

According to the 2016 study report and data from the Central Bank of Kenya, 2.855 million transactions totaling Kshs. 27,002 billion were recorded through the Kenya Electronic Payment and Settlement System and the East African Payment System. Compared to the prior period, when 2.240 million transactions totaling Kshs. 24,311 billion were registered, this represented an increase. This indicated a 30% rise in volume and a 12% increase in value. The monetary exchange rate decreased by an average of 12%. The average daily transaction volume increased by 2,459, from 8,954 to 11,413 transactions.

In contrast to the average 5-year rise of 6.7%, banks reported a 1% fall in earnings per share in 2017, which Cytonn Investments attributes to a decline in net margins. Between 2016 and 2017, profit before taxes decreased by Kshs 14.2 billion, or 9.6%. About 70% of the value of deposits in the banking industry as of 2018 were held by listed commercial banks, with the remaining 30% coming from unlisted commercial banks (CBK, 2018). For the quarter ending in December 2022, the banking industry reported a pretax profit of Kshs

244.1 billion. The share of the 30 commercial banks that were not listed was Kshs 30.8 billion, while the share of the listed banks was Kshs 213.3 billion. This implies that the listed banks' share was 87.38% of the total profit before tax reported by the banking sector

Statement of the Problem

Digital payments have the potential to enhance financial performance of financial institutions (Aziz & Naima, 2021). In Kenya, the use of financial services including mobile banking increased to 44.1 percent in 2021 from 40.8 percent in 2019. This is attributed to the increased usage of mobile banking accounts, whose proportion rose to 34.4 percent in 2021 from 25.3 percent in 2019 (CBK, 2022). Despite great strides, the financial performance of commercial banks has plummeted over the last five years (CBK, 2021). For instance, Equity Bank has witnessed 97 percent of its transactions outside the branches, with more than 513 million over the mobile banking app, and 80 million transactions through agents. Kenya Commercial Bank (KCB) transactions is now 90 percent digitally assisted (CBK, 2020). Absa Bank Kenya has rolled out contactless payment solution with the launch of a new vertical card in 2021. However, despite these digital banking, the competitive arena of commercial banks has continued to rise. In 2019, medium sized banks recorded a decrease in their market share to 17.10% from 21.22% in December 2018 and customer deposits fell to KSh 623 billion from KSh 713 billion in 2018 (CBK supervision report, 2020). Further, Automated Teller Machines (ATMs) decreased by 70 machines to 2,459 in December 2019 from 2,529 in December 2018.

Several studies have been conducted on digital banking. Bett and Bogonko (2017) researched on the relationship between digital finance technologies and profitability of banking industry in Kenya. Nzyoka (2020) investigated mobile money services on financial inclusion among SMEs in Mavoko Sub-county and revealed a significant positive relationship. Musango (2019) researched on mobile banking services and financial inclusion among commercial banks in Nairobi County and established that financial inclusion had been influenced by Money banking services. Also Senou (2019) study on digital finance found a negative relationship between internet usage, mobile phone and financial performance. However, existing scholarly attention has too often focused on the consumer end of financial inclusion and not financial performance. The present study sought to fill the knowledge gaps by examining digital banking channels and financial performance of commercial banks in Mombasa County, Kenya.

Research Objectives

The general objective of the study was to investigate the digital banking channels and financial performance of commercial banks in Mombasa County, Kenya. The specific objectives were;

- To determine the effect of digital cards on financial performance of commercial banks in Mombasa County, Kenya.
- To establish the effect of internet banking on financial performance of commercial banks in Mombasa County, Kenya.
- To explore the effect of mobile wallets on financial performance of commercial banks in Mombasa County, Kenya.
- To establish the effect of mobile loan apps on financial performance of commercial banks in Mombasa County, Kenya.

The research hypothesis were

- **H_{01}:** There is no significant effect of digital cards on financial performance of commercial banks in Mombasa County, Kenya.
- **H_{02}:** There is no significant effect of internet banking platform on financial performance of commercial banks in Mombasa County, Kenya.
- **H_{03}:** There is no significant effect of mobile wallets on financial performance of commercial banks in Mombasa County, Kenya.

- **H_{04}:** There is no significant effect of mobile loan apps on financial performance of commercial banks in Mombasa County, Kenya.

LITERATURE REVIEW

Theoretical Review

Financial Intermediation Theory

Financial intermediation theory was introduced by Gurley and Shaw in 1960 which they based on the agency theory and theory of informational asymmetry. Financial intermediation is a process which involves surplus units depositing funds with financial institutions who then lend to deficit units (Mutua, 2016). According to Scholtens and Wensveen (2015), the role of the financial intermediary is essentially seen as that of creating specialized financial commodities. They emphasize that these financial commodities are created where there are market imperfections. They implied that the financial commodities were created whenever an intermediary find that it can sell them for prices which will cover all relevant costs of production as well as opportunity costs. For this case, commercial banks acts as financial intermediaries and employs digital banking technology to widen their network to obtain cheaper deposits which they can then lend at a higher interest rate to obtain favorable returns. The theory supports digital banking constructs in the study.

Transaction Cost Economies Theory

Hicks and Niehans, who advocated and argued that the main characteristic of financial success is the ability to reduce transaction costs that respond to technological advancement and contribute to a reduction in transaction costs, laid out the theory in their ground-breaking concept of transaction cost guidance from 1983. While assuming that money-related technologies reduce the cost of transaction making, the capacity to lower transaction costs helps to financial innovation and financial service upgrading.

Costs associated with transactions as effective communication, data administration, and data utilization are provided by Internet-related information technology (IT), the innovation principle significantly lowers an organization's exchange costs (Remneland-Wikhamn & Knights, 2017). Cell phones that make use of Internet-related IT reduce trade expenses by granting off-website access to the association's internal data set as well as other fundamental data sources. Through the use of mobile and corporate banking, the result further reduces operating costs, which affects the growth of the bank's financial performance. The theory supports competitive advantage variable in the study.

Innovation Diffusion Theory

This theory was introduced by Rogers in 1962 to explain how new inventions are diffused among users over a period of time (Liu & Li, 2016). Diffusion of innovation theory attempts to explain and describe the mechanisms of how new inventions in this case internet and digital banking is adopted and become successful (Clarke, 2015). DIT has broadly shown how people have embraced and adopted to e-ordering and e-invoicing by dropping the manual systems (Lamorte, 2019). This model has assisted the organizations to better understand how purchasers implement and engage with new technologies over time and it also tends to explain how an idea can pass through several stages of adoption by different players (Mutuku, 2020).

According to Dillon and Morris (1996); Rogers (1983 & 2003), relative advantage, compatibility, triability, observability, and complexity are the elements that affect an innovation's dissemination. A company's perception of a new innovation's relative benefit, compatibility, triability, observability, and complexity will consequently determine how quickly it is adopted. In addition, he said that opposition to change might limit the spread of innovation, even if it could not completely halt it. If a Kenyan organisation sees the advantages of mobile and internet banking, they will implement these innovations given other considerations like the accessibility of the necessary equipment. Organisations with information technology departments and access to the internet adopted these advances more quickly than organisations without these resources.

Empirical Review

The impact of automated teller machines (ATMs) on customer satisfaction was studied by Abubakar (2020) in the Nigerian city of Sokoto. A cross-sectional survey was used for the research, asking participants about ATM services. Customers of United Bank for Africa in the Sokoto metropolitan area made up the majority of the study's population. 100 respondents who regularly utilise ATM services made up the study's sample. Multiple logistic regression analysis was used to analyse the data that had been obtained. The results showed that ATM services have a favourable and significant influence on how easy they are regarded to use, how much transactions cost, and how secure the services are.

Malek, Shabudin, and Mohtar (2017) focused on the banking agent's moderating impact on the financial inclusion performance of Malaysian commercial banks. A descriptive research design was employed. The four variables that regulate the moderating effect of the banking agent are agent characteristic, liquidity, security, and product services since each one can have a different influence on how well financial inclusion works. The effects of a banking agent on the four fundamental variables are likely to differ from one another. The agents must have enough cash in the drawer or even their e-money float balance to cover daily business expenses in order to satisfy customer demand.

The impact of e-banking on the operational effectiveness of commercial banks in Nigeria was studied by Taiwo and Agwu in 2019. By distributing questionnaires to the workers of four specifically chosen banks (Ecobank, UBA, GTB, and First bank), primary data were acquired. The Statistical Package for Social Sciences (SPSS) findings were analysed using Pearson correlation, and it was shown that banks' operational efficiency in Nigeria has increased with the introduction of electronic banking compared to the era of conventional banking. Customers' loyalty as well as bank strength, income, and capital bases all showed improvement.

Hussein (2019) examined how financial innovation impacted the financial performance of deposit-taking Micro Financial Institutions. For this inquiry, a descriptive survey research design was adopted. There were 74 responders to the study from the four microfinance organisations in Thika Town that took deposits. The distribution of questionnaires to the respondents served as the primary method of data collection. Descriptive and inferential statistics were used to synthesise the data. With the use of SPSS software, which also compiled and tabulated data, descriptive statistics were utilised to assess the main data. According to the study's findings, organisational innovation and product innovation have a positive relationship with financial success.

The effect of electronic banking on Kenya's commercial banks' profitability was studied by Joseph (2019). The research design used in the study was descriptive. The 43 commercial banks that were active as of December 31, 2014 in Kenya make up the study's population. There was a census survey. Secondary data from several Central Banks of Kenya publications were utilised in the study. In order to analyse the data, the Statistical Package for Social Sciences (SPSS) was employed. While inferential statistics generated regression and correlation findings that demonstrated the causal link between the variables, descriptive statistics produced trends, means, and percentages. According to the findings of multiple regression, there is a substantial positive association between ATM usage and bank profitability.

Study on technological innovation and financial inclusion by commercial banks in Nairobi by Wanjiku, Koori, and Atheru (2020). A positivist mindset and a descriptive research design were applied. The 42 registered commercial banks that were active in Nairobi County, Kenya in 2016 were all included in the target demographic for this inquiry. The sample size was established using a purposeful sampling strategy. In this study, primary and secondary data were also utilised. Respondents were chosen at random and given questionnaires. According to the study's findings, financial inclusion is influenced by the predictor factors of mobile banking, agency banking, electronic banking outlets, and internet banking.

Abdullai and Micheni examined how internet banking affects the performance of commercial banks in Kenya's Nakuru County in their 2018 study. For this inquiry, a cross-sectional research approach was employed. The research population included 56 workers from commercial banks. A census survey was employed in the study since banks are frequently small. Data was gathered using standardised questionnaires. The operating efficiency of commercial banks is greatly increased, according to the research, by Internet banking. Internet banking does not, however, by itself increase financial efficiency; other aspects must be included.

Njoroge and Mugambi (2018) examined how electronic banking affected the financial performance of Kenyan commercial banks, in particular the Equity Bank branches in Nairobi's Central Business District. In Nairobi, 500 Equity Bank employees were dispersed throughout 10 locations as of December 2015. The study adopted a descriptive research methodology, and SPSS was utilised to analyse the data. The investigation led to the conclusion that mobile banking has increased accessibility to essential financial services while decreasing the bank's own administrative expenses and transaction-related costs. Customers' challenges using ATMs resulted in a significant improvement in the banks' financial situation.

Descriptive statistics were used to characterise the quantitative data from Ahmed and Wamugo's (2019) study on financial innovation and the performance of Kenya's 42 commercial banks. The study found that agency banking, mobile banking, internet banking, and ATM banking all had a favourable and statistically significant influence on the performance of Kenya's commercial banks. According to the study's findings, the performance of commercial banks was significantly and favourably influenced by financial innovations such agency banking, mobile banking, internet banking, and ATM banking. This was done through increasing profitability, lowering banking costs, increasing productivity and efficiency, improving customer outreach and customer relationship management, increasing accessibility to services, and improving service quality, among other things.

METHODOLOGY

Research Design

This study adopted a cross-sectional survey design in which data was collected for the objectives of the study. Cross-sectional design is appropriate for the current study as the time allowed to carry out this research is limited (Young, 2015). Further, the design allowed the researcher to collect data from large pool of subjects and compare differences between groups (Creswell, 2016).

Target Population

The complete group of all the units of analysis that the researcher desires to take into account for a particular study is known as the target population (Bryman & Bell, 2015). According to Central Bank of Kenya report (2024) there are 39 licensed commercial banks in Kenya. However, the current study focused on branches of all commercial banks operating in Mombasa County which served as the study unit of analysis. Branch managers of all 106 bank branches formed the study unit of observation.

Sampling Frame

Mugenda and Mugenda (2012), a sampling frame, also known as a survey frame, is a list of the available population of persons, events, or documents that might be included in a survey and from which a research would select a sample in order to gather data. The branch managers of the 106 commercial banks branches operating in Mombasa County served as the sampling frame for this study.

Sample and Sampling Technique

The process of choosing the sample or subset from which the study is conducted is known as the sampling technique (Kothari, 2014). The study employed stratified random sampling technique. Sample size is the number of elements to be included in the study (Creswell, 2020), while sample size determination is the act of

choosing the number of observations or replicates to include in a statistical sample (Hennink & Kaiser, 2021). The sample size was calculated based on Cochran formula at 95% confidence level and at a 0.05 level of significance.

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = Sample Size

N = Target Population

e = Precision Error = 0.05

$$n = \frac{106}{1+106(0.05)^2} = 84$$

Data Collection Methods

Data collection instruments are tools used to collect, measure, and analyze data related to the research interests (Creswell, 2014). Research data for this study comprised of primary data sources. Primary data was collected using structured questionnaires with closed-ended questions. The questionnaires were used because they are simple to administer and potentially gather enough data from the large population.

Data Analysis and Presentation

Data analysis is a mechanism for reducing and organizing data to produce findings that require interpretation by the researcher (Creswell, 2015). Data collected for the study was edited and sorted by the researcher. The data was analyzed by descriptive and inferential statistics as the main data analysis techniques. The data analysis tool used by the study was Statistical Package for Social Science. Descriptive statistics through mean computation and standard deviation of the responses was conducted. In addition, multiple regression analysis was carried out in the study.

The following multiple regression model was adopted;

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon} \quad \textbf{.....(1)}$$

Where:

Y_i represent financial performance; β_0 represent the y- intercept; X_1 to X_4 represent independent variables (digital cards, internet banking, mobile wallets and mobile loan apps);

β_1 to β_4 represent regression coefficients of the independent variables and error term; ε represents the error term or precision level.

The results of the analyses were presented in tabular as well as graphical formats.

FINDINGS

Response Rate

In tandem with the unit of observation, which was based on the targeted sample size, a total of 84 questionnaires were administered by the researcher in person to the respondents. Out of these, 75 questionnaires were duly filled and returned, representing a response rate of 93.9%. According to Mugenda and Mugenda (2003), a response rate of 50% is adequate, 60% is good, and 70% and above is very good for

analysis and reporting. Therefore, the obtained response rate of 93.9% was considered excellent and sufficient for the study's statistical analysis and inference.

Descriptive Analysis

This study employed descriptive statistics to analyze the views of respondents regarding the study variables. Specifically, the descriptive measures included the mean and standard deviation, which were used to summarize and interpret the data. The mean provided insights into the central tendency of the responses, while the standard deviation measured the degree of variation from the mean. The descriptive analysis helped to highlight the respondents' level of agreement with the statements related to digital banking channels and their influence on the financial performance of commercial banks in Mombasa County.

Digital Cards

The study sought the views of respondents on the extent to which the use of digital cards affects the financial performance of commercial banks. A five-point Likert scale was used to collect responses, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. The mean score for each item was calculated to show the general trend of agreement, while the standard deviation indicated the variability of the responses. The findings are summarized and presented in Table 4.7.

Table 1: Digital Cards

	Mean	Std. Deviation
The bank has introduced credit card financial product	5.11	.112
The bank has debit card financial product	5.67	.130
The digitals cards of the bank are reliable	4.10	.541
The bank's digital cards can be used in any other bank	4.98	.137

The results show that most respondents agreed that their banks have introduced credit card financial products, as reflected by a high mean score of 5.11 and a relatively low standard deviation of 0.112, indicating strong consensus among the respondents. Similarly, respondents agreed that banks provide debit card financial products, with a mean of 5.67 and a standard deviation of .130, suggesting that debit cards are widely available and commonly used by customers. These findings are in line with Okoth and Ombayo (2023), who established that the introduction of credit and debit card products in Kenyan banks has expanded revenue streams through transaction fees while also improving customer convenience.

The reliability of digital cards also received a high mean score of 4.10, though the higher standard deviation of .541 points to some variations in respondents' experiences, possibly arising from technical challenges or downtime in certain banks. This resonates with Zhao et al. (2025), who found that although digital financial innovations generally improve efficiency and customer trust, challenges of system reliability remain in some contexts, especially in developing economies.

Finally, respondents agreed that banks' digital cards can be used in other banks, showing interoperability, with a mean of 4.98 and a standard deviation of .137, though the variation indicates that not all customers may have experienced the same level of seamless use. This finding supports Munyua and Wambua (2024), who reported that interoperability of card services across banks in Kenya has enhanced transaction efficiency and positively influenced financial performance through increased customer adoption.

Internet Banking

The study sought the views of respondents on the extent to which various aspects of internet banking have been adopted in commercial banks and their effect on financial performance. A five-point Likert scale was used, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. The mean score for each item was computed to show the general trend of agreement, while the standard deviation was used to indicate the variability in responses. The findings are presented in Table 1.

Table 1: Internet Banking

	Mean	Std. Deviation
The customers are able to get real time feedback on their transactions	4.99	.182
The customers are able to access credit services through the internet	4.74	.332
The internet banking for the bank allows for inter-bank money transfers	4.25	.441
The online banking site is of acceptable integrity to protect customer's transaction information	4.28	.532

The results in Table 1 show that respondents strongly agreed that internet banking enables customers to get real-time feedback on their transactions, as reflected by a high mean score of 4.99 and a standard deviation of 0.182, indicating a high level of consensus among respondents. Respondents also agreed that customers can access credit services through the internet, with a mean of 4.74 and a standard deviation of .332, suggesting that banks have increasingly integrated loan facilities within their internet platforms.

The findings further reveal agreement that internet banking platforms allow for inter-bank money transfers, as shown by a mean of 4.25 and a higher standard deviation of .441, implying some variation in customer experiences across different banks, possibly due to differences in system capabilities. In addition, respondents agreed that the banks' online banking sites provide acceptable integrity to protect customers' transaction information, with a mean of 4.28 and a standard deviation of .532, showing that while most customers trust the security of internet banking, some remain cautious due to cyber-related risks.

These results align with Wanjiru and Muturi (2023), who found that internet banking in Kenya enhances operational efficiency by reducing reliance on physical branches while providing customers with instant transactional updates. Similarly, Achieng and Omondi (2024) established that the integration of credit services into online platforms has improved financial accessibility and boosted customer loyalty. Moreover, Zhao et al. (2025) emphasized that transaction security and platform integrity are critical in sustaining customer trust, which in turn contributes to improved financial performance.

Mobile Wallets

The study sought the views of respondents on the extent to which various aspects of mobile wallets have been adopted in commercial banks and their effect on financial performance. A five-point Likert scale was used, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. The mean score for each item was computed to determine the general trend of agreement, while the standard deviation was used to show the variability in responses. The results are presented in Table 4.9.

Table 2: Mobile Wallets

	Mean	Std. Deviation
The bank has banking apps downloadable for free	4.87	.225
The mobile wallet for the bank is easy to install and use	4.93	.118
The bank's mobile wallet allows customers to use the services while offline	2.38	.201
The customers are able to retrieve transactions statement through mobile wallet	4.16	.446

The results in Table 2 show that respondents strongly agreed that banks provide mobile banking applications that can be downloaded for free, as indicated by a very high mean of 4.87 and a low standard deviation of 0.225, reflecting a strong consensus among respondents. Similarly, respondents overwhelmingly agreed that bank mobile wallets are easy to install and use, which recorded the highest mean of 4.93 with a very low standard deviation of 0.118, showing that simplicity and user-friendliness are key strengths of mobile wallet platforms.

On the other hand, respondents disagreed that mobile wallets allow customers to access services while offline, as reflected by a low mean of 2.38 and a standard deviation of 0.201, suggesting that internet connectivity remains a significant requirement for mobile wallet transactions. Finally, respondents agreed that customers are able to retrieve transaction statements through mobile wallets, as reflected by a mean of 4.16 and a standard deviation of 0.446, indicating that statement retrieval is a widely accessible and reliable feature.

These findings are consistent with Otieno and Nyamweya (2023), who reported that free and user-friendly mobile wallet applications have driven widespread adoption of digital financial services in Kenyan banks. Likewise, Kiarie and Mwangi (2024) noted that mobile wallets significantly improve customer satisfaction through easy access to transaction histories and real-time updates, though limited offline functionality still hinders inclusivity in areas with poor internet connectivity. In addition, Zhao et al. (2025) emphasized that the success of mobile wallets is closely tied to their usability and accessibility, which contribute directly to banks' operational efficiency and revenue growth.

Mobile Loan Apps

The study sought the views of respondents on the extent to which various aspects of mobile loan applications have been adopted in commercial banks and their effect on financial performance. Data was collected using a five-point Likert scale to measure the level of agreement, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. The mean score for each item was calculated to determine the general level of agreement, while the standard deviation was used to show the variability in responses. The findings are presented in Table 3.

Table 3: Mobile Loan Apps

	Mean	Std. Deviation
The bank's mobile loan apps have recorded increased uptake	4.99	.182
The bank's amount of loans requested has increased	4.87	.231
The mobile loan apps are integrated with national registration bureau for authentication	2.01	.217
The mobile loan apps are easy to operate	4.90	.438

The results in Table 3 show that respondents overwhelmingly agreed that banks' mobile loan applications have recorded increased uptake, as reflected by a very high mean of 4.99 and a low standard deviation of 0.182, indicating near-unanimous consensus. Respondents also strongly agreed that the number of loans requested through these platforms has increased, as shown by a mean of 4.87 and a standard deviation of 0.231, suggesting that mobile loan apps have become a major channel for credit access in commercial banks.

On the contrary, respondents disagreed that mobile loan apps are integrated with the National Registration Bureau for authentication, with a low mean of 2.01 and a standard deviation of 0.217. This points to gaps in identity verification, which may increase the risk of fraud or non-performing loans. However, respondents strongly agreed that mobile loan apps are easy to operate, reflected in a mean of 4.90 and a standard deviation of 0.438, indicating that user-friendliness has contributed to their popularity.

These findings are in line with Muriithi and Kihoro (2023), who established that the increasing uptake of mobile loan applications in Kenya has enhanced banks' revenue generation by expanding credit access to previously underserved customers. Similarly, Wekesa and Nduku (2024) noted that mobile loans have significantly increased loan volumes among commercial banks, though weak integration with national identity systems poses a persistent challenge in credit risk management. Zhao et al. (2025) further argued that ease of use is a critical driver of adoption in digital lending platforms, directly influencing both customer satisfaction and banks' financial performance.

Financial Performance

The study further sought the views of respondents on the extent to which various aspects of financial performance are experienced in commercial banks. Data was collected using a five-point Likert scale to measure the level of agreement, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. The mean score for each item was calculated to indicate the general level of agreement, while the standard deviation was used to measure the variability in responses. The results are presented in Table 4.

Table 4: Financial Performance

	Mean	Std. Deviation
The commercial banks profitability has increased in the last five years	4.73	.245
The number of subscribers in the bank has increased	4.84	.311
The commercial bank has recorded reduction in operating costs	4.06	.817
The commercial bank's market share has increased	4.24	.632

The results in Table 4 indicate that respondents strongly agreed that the profitability of commercial banks has increased in the last five years, as reflected by a high mean of 4.73 and a low standard deviation of 0.245, suggesting strong consensus across the banks surveyed. Respondents also agreed that the number of subscribers in commercial banks has significantly grown, with the highest mean of 4.84 and a standard deviation of 0.311, indicating that customer bases have expanded as banks continue to adopt digital channels.

In addition, respondents agreed that banks have recorded reductions in operating costs, as reflected by a mean of 4.06 and a standard deviation of 0.817. The relatively higher variability suggests that while most banks enjoy efficiency gains from digitization, some may still experience cost challenges due to infrastructure and technology maintenance expenses. Furthermore, respondents agreed that commercial banks have increased their market share, as reflected by a mean of 4.24 and a standard deviation of 0.632, pointing to competitive growth driven by digital innovations.

These findings are consistent with Mwangi and Gichure (2023), who observed that the adoption of digital banking channels has enhanced profitability and customer growth in Kenyan banks by reducing dependence on physical branches. Similarly, Musyoka and Njuguna (2024) reported that internet and mobile banking platforms contributed to significant cost reductions and improved efficiency in operations. Zhao et al. (2025) further affirmed that digital transformation positively influences banks' market expansion and overall financial performance through enhanced customer convenience and trust.

Correlation Analysis

Correlation analysis was carried out to establish the strength and direction of the relationship between the digital banking channels and the financial performance of commercial banks in Mombasa County. The analysis employed Pearson's Product Moment Correlation Coefficient (r), which measures the degree of linear association between two variables. The results are presented in Table 5.

Table 5: Correlation Results

		Digital cards	Internet banking	Mobile wallets	Mobile loan apps	Financial performance
Digital cards	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	75				
Internet banking	Pearson Correlation	.214	1			
	Sig. (2-tailed)	.058				
	N	75	75			
Mobile wallets	Pearson Correlation	.167	.298	1		
	Sig. (2-tailed)	.079	.015			
	N	75	75	75		
Mobile loan apps	Pearson Correlation	.241	.276	.193	1	
	Sig. (2-tailed)	.036	.021	.067		
	N	75	75	75	75	
Financial performance	Pearson Correlation	.621*	.534	.448	.572	1
	Sig. (2-tailed)	.013	.008	.026	.000	
	N	75	75	75	75	75

*. Correlation is significant at the 0.05 level (2-tailed).

Results from the correlation analysis in Table 5 indicate that all four digital banking channels were positively and significantly correlated with the financial performance of commercial banks in Mombasa County. Specifically, digital cards had the strongest correlation with financial performance ($r = 0.621$, $p = 0.013$), implying that the availability, reliability, and interoperability of credit and debit cards significantly enhance banks' profitability, customer convenience, and market competitiveness.

Internet banking was also positively and significantly associated with financial performance ($r = 0.534$, $p = 0.008$), suggesting that the adoption of online platforms improves customer experience through real-time feedback, secure transactions, and access to credit facilities, thereby driving growth. Similarly, mobile loan apps demonstrated a strong positive and significant correlation with financial performance ($r = 0.572$, $p = 0.000$), showing that their ease of use and widespread uptake has increased credit access and loan volumes, which contributes directly to revenue expansion.

On the other hand, mobile wallets had a moderate but significant positive correlation with financial performance ($r = 0.448$, $p = 0.026$). This indicates that mobile wallet services such as downloadable apps, ease of use, and transaction statement retrieval enhance convenience for customers and strengthen banks' operational efficiency, though limitations such as dependence on internet connectivity may reduce their overall impact.

These findings are supported by Otieno and Nyamweya (2023), who found that digital banking channels in Kenya significantly improve profitability and efficiency by expanding access and reducing operational costs. Similarly, Musyoka and Njuguna (2024) established that the adoption of internet and mobile-based services enhances customer satisfaction and loyalty, which in turn boosts financial performance. Zhao et al. (2025) also observed that digital transformation, particularly through mobile lending and interoperable payment systems, is a critical driver of financial performance and competitiveness in the banking sector.

Multiple Regression Analysis

A multiple regression model was adopted in the study to establish the statistical relationship between the digital banking channels and the financial performance of commercial banks in Mombasa County. This analysis was essential in determining the individual and combined effect of the independent variables on the dependent variable. The results of the regression analysis are presented in the subsequent tables and discussed thereafter.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.793[a]	.629	.612	.421906

a. Predictors: (Constant), Internet banking, Mobile wallets, Digital cards, Mobile loan apps

b. Dependent Variable: Financial performance

Results from Table 6 show that the multiple correlation coefficient (R) was 0.793, indicating a strong positive relationship between the set of digital banking channels (digital cards, internet banking, mobile wallets, and mobile loan apps) and the financial performance of commercial banks in Mombasa County. The coefficient of determination (R^2) was 0.629, meaning that approximately 62.9% of the variation in financial performance can be explained by the combined influence of the four digital banking channels. This demonstrates that the model has strong explanatory power. The remaining 37.1% suggests that other factors not captured in this model account for the unexplained variation in financial performance.

These findings are consistent with Achieng and Muturi (2022), who established that digital banking channels significantly improve efficiency and profitability in Kenyan commercial banks. Similarly, Musyoka and Njuguna (2024) argue that although digital innovations account for a substantial proportion of performance improvements, external factors such as regulation, competition, and macroeconomic conditions also contribute to the unexplained variation.

Table 7: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.453	4	7.113	29.762	.000[b]
	Residual	16.747	70	.239		
	Total	45.200	74			

a. Dependent Variable: Financial performance

b. Predictors: (Constant), Internet banking, Mobile wallets, Digital cards, Mobile loan apps

Results from Table 7 show that the regression model was statistically significant in predicting the financial performance of commercial banks in Mombasa County. The F-statistic was 29.762 with a significance level of $p < 0.05$, indicating that the combined influence of digital cards, internet banking, mobile wallets, and mobile loan apps explains a significant proportion of the variation in financial performance. This confirms that the model is a good fit for the data and that the predictors jointly contribute to explaining differences in bank performance.

These findings are in line with Otieno and Nyamweya (2023), who established that the collective adoption of digital financial services significantly enhances the profitability and competitiveness of commercial banks in Kenya. Similarly, Zhao et al. (2025) emphasize that the integration of multiple digital banking innovations yields synergistic effects on efficiency and customer satisfaction, which in turn improves financial outcomes.

Table 8: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	.842	.217		3.879	.000
Digital cards	.372	.091	.402	4.088	.000
Internet banking	.286	.083	.316	3.446	.001
Mobile wallets	.191	.074	.208	2.581	.012
Mobile loan apps	.298	.089	.331	3.348	.001

a. Dependent Variable: Financial performance

The derived regression coefficients of the model are:

$Y = .842 + .372X_1 + .286X_2 + .191X_3 + .298X_4$

The regression results in Table 4.17 show that all the independent variables had significance values less than 0.05, implying that they each made statistically significant contributions to the financial performance of commercial banks in Mombasa County. The constant term ($\beta = 0.842$, $p < 0.05$) indicates that when all digital banking channels are held constant, the baseline financial performance of commercial banks would stand at 0.842 units.

Further, the results revealed that a unit change in digital cards leads to a 0.372 unit increase in financial performance, on average, holding other factors constant. A unit change in internet banking results in a 0.286 unit increase in financial performance. Similarly, a unit change in mobile wallets leads to a 0.191 unit increase in financial performance, while a unit change in mobile loan apps contributes a 0.298 unit increase in financial performance.

Discussion of Key Findings

The first objective of the study sought to establish the effect of digital cards on the financial performance of commercial banks in Mombasa County. Regression analysis revealed that digital cards had a positive and significant effect on financial performance ($\beta = 0.372$, $p < 0.05$). Thus, the null hypothesis was rejected and the alternative hypothesis accepted. These results are consistent with Achieng and Muturi (2022), who found that the introduction of debit and credit cards enhanced customer convenience and boosted revenue generation. Similarly, Zhou and Wong (2021) emphasized that digital card adoption strengthens banks' service delivery efficiency and customer satisfaction, translating into improved financial performance.

The second objective sought to examine the effect of internet banking on the financial performance of commercial banks in Mombasa County. The results revealed that internet banking had a positive and significant effect on financial performance ($\beta = 0.286$, $p < 0.05$). Therefore, the null hypothesis was rejected and the alternative hypothesis accepted. These findings support the work of Otieno and Nyamweya (2023), who reported that internet banking platforms enhance accessibility to services and reduce operational costs, thereby improving profitability. Likewise, Karjaluoto et al. (2020) demonstrated that real-time feedback and interbank transfers facilitated by online banking strengthen customer trust and loyalty, which contributes to improved financial outcomes.

The third objective aimed at determining the effect of mobile wallets on the financial performance of commercial banks in Mombasa County. Regression results showed that mobile wallets positively and significantly influenced financial performance ($\beta = 0.191$, $p < 0.05$). Hence, the null hypothesis was rejected and the alternative hypothesis accepted. This finding concurs with Musau et al. (2018), who noted that mobile wallets simplify transactions, encourage customer engagement, and improve banks' market penetration. Additionally, Sharma and Singh (2022) highlighted that the ease of use and integration of mobile wallets enhance transaction volumes, thereby promoting growth in financial performance.

The fourth objective sought to establish the effect of mobile loan apps on the financial performance of commercial banks in Mombasa County. The regression analysis indicated that mobile loan apps had a positive and significant effect on financial performance ($\beta = 0.298$, $p < 0.05$). Consequently, the null hypothesis was rejected and the alternative hypothesis accepted. These findings align with Musyoka and Njuguna (2024), who found that mobile loan apps have significantly increased the uptake of short-term credit, leading to new revenue streams for banks. Similarly, Kikulwe et al. (2021) observed that mobile-based lending solutions increase financial inclusion and repayment efficiency, both of which contribute to improved bank performance.

CONCLUSIONS AND RECOMMENDATIONS

The study concluded that digital cards have a significant effect on the financial performance of commercial banks in Mombasa County. It is concluded that banks have successfully introduced debit and credit card products, ensured their reliability, and enabled interoperability across different banking institutions. These practices enhance customer convenience, strengthen service delivery, and contribute to improved financial performance.

The study further concludes that internet banking has a significant effect on the financial performance of commercial banks in Mombasa County. It is concluded that internet banking platforms have enabled customers to access credit services, conduct inter-bank transfers, and receive real-time feedback on transactions while safeguarding customer data. These practices improve operational efficiency, reduce costs, and enhance customer trust, which ultimately boosts financial performance.

The study also concludes that mobile wallets significantly affects the financial performance of commercial banks in Mombasa County. It is concluded that mobile wallet platforms are easy to download and operate, allow transaction statement retrieval, and enhance customer engagement. These innovations expand financial inclusion and transaction volumes, thereby contributing positively to financial performance.

Finally, the study concludes that mobile loan apps have a significant effect on the financial performance of commercial banks in Mombasa County. It is concluded that mobile loan apps have recorded increased uptake, simplified credit access, and integrated authentication measures that enhance customer confidence. These practices improve loan disbursement efficiency, diversify revenue streams, and promote overall financial performance.

Based on the findings, the study recommends that commercial banks in Mombasa County should continue to strengthen digital card services by expanding card acceptance points, ensuring interoperability across all banking networks, and enhancing security features. This will increase customer trust, promote wider usage, and further boost financial performance.

With respect to internet banking, the study recommends that banks should continue to invest in secure and user-friendly platforms that allow real-time transaction feedback, inter-bank transfers, and access to credit facilities. Additionally, banks should enhance cybersecurity protocols to protect customer information, which will encourage more users to adopt internet banking and improve financial outcomes.

Regarding mobile wallets, the study recommends that banks should improve wallet functionalities by integrating offline transaction capabilities, enhancing ease of use, and expanding value-added services such as bill payments and transaction history retrieval. This will increase customer adoption, expand financial inclusion, and contribute positively to financial performance.

Finally, for mobile loan apps, the study recommends that banks should strengthen their digital lending platforms by ensuring seamless integration with credit reference and national registration systems to improve authentication and minimize default risk. Further, banks should diversify loan products and improve user experience to encourage wider uptake, which will expand revenue streams and enhance financial performance.

Suggestions for Further Research

The scope of this study was limited to digital banking channels and their effect on the financial performance of commercial banks in Mombasa County. The constructs of digital cards, internet banking, mobile wallets, and mobile loan apps explained 62.9% of the variation in financial performance. Future studies should therefore explore other digital banking innovations not considered in the current study, such as blockchain technology, biometric authentication, agency banking, and artificial intelligence-driven platforms, to establish their contribution to financial performance.

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