
Journal of Economic Finance Research and Review

Volume: 02 Issue: 09 September 2026

Financial Technology Adoption and Performance of Micro, Small and Medium Enterprises (MSMEs) In Nairobi County, Kenya

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Published Date: September 14, 2026

Article DOI: 10.65150/EP-jefrr/V2E9/2026-06

ABSTRACT: Financial Technology (Fintech) has emerged as an important enabler of Micro, Small, and Medium Enterprise (MSME) performance by improving access to financial services, enhancing operational efficiency, and strengthening business competitiveness. Despite the rapid expansion of Fintech services in Kenya, empirical evidence on how different dimensions of Fintech adoption influence MSME performance and how contextual factors shape this relationship remains limited. This study examined the effect of Financial Technology adoption on the performance of MSMEs in Nairobi County, Kenya. Specifically, it assessed the effects of Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms on MSME performance and examined the moderating effects of Digital Literacy, Trust and Security Concerns, and Internet Access. The study was anchored on the Technology Acceptance Model, Innovation Diffusion Theory, and Resource-Based View. A descriptive cross-sectional survey design was adopted, targeting 1,000 registered MSMEs in Nairobi County. Using Yamane's formula, a sample of 286 MSMEs was determined and selected through stratified random sampling. Primary data were collected using structured questionnaires administered to MSME owners and managers. Of the 286 questionnaires distributed, 201 were successfully completed, yielding a 70.3% response rate. Data were analyzed using SPSS Version 27 through descriptive statistics, Pearson's Product Moment Correlation, and Hierarchical Moderated Multiple Regression. The findings established that all four Fintech dimensions had positive and statistically significant effects on MSME performance. Mobile Payment Platforms recorded the strongest effect ($\beta = 0.382$, $p < 0.001$), followed by Digital Market Platforms ($\beta = 0.301$, $p < 0.001$), Digital Lending Platforms ($\beta = 0.244$, $p < 0.001$), and Digital Financial Management Tools ($\beta = 0.118$, $p = 0.045$). Collectively, the four dimensions explained 55.1% of the variation in MSME performance ($R^2 = 0.551$). Incorporating the moderating variables increased the explanatory power to 64.7% ($R^2 = 0.647$), representing an additional 9.6% variance explained. The study concludes that Fintech adoption significantly enhances MSME performance and that Digital Literacy, Trust and Security Concerns, and Internet Access strengthen this relationship. It recommends strengthening digital infrastructure, affordable internet access, digital literacy, cybersecurity, and consumer protection while encouraging financial institutions and Fintech providers to develop secure, affordable, and MSME-oriented solutions.

KEYWORDS: Financial Technology (Fintech); MSME Performance; Mobile Payment Platforms; Digital Lending Platforms; Digital Financial Management Tools.

INTRODUCTION

Background of the Study

Micro, Small, and Medium Enterprises (MSMEs) constitute an important component of economic development because of their contribution to employment creation, income generation, entrepreneurship, innovation, and poverty reduction. In Kenya, MSMEs are particularly important in supporting livelihoods and promoting inclusive economic development. Nevertheless, their contribution is constrained by challenges such as limited access to finance, high transaction costs, inadequate financial management capabilities, operational inefficiencies, and restricted market access. Financial Technology (Fintech) has increasingly emerged as an important mechanism for addressing these constraints by transforming how enterprises transact, access financing, manage financial information, and interact with customers. Fintech encompasses technological innovations such as Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms, which potentially enhance financial inclusion, operational efficiency, market accessibility, and enterprise competitiveness.

Globally, the proliferation of digital technologies has significantly transformed the financial and operational environments within which MSMEs operate. Digital Financial Services enable enterprises to overcome some limitations associated with conventional banking by facilitating faster transactions, alternative financing, improved financial management, and wider market access. Abbasi and Weigand (2017) observe that Digital

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Financial Services have increasingly replaced or complemented traditional financial services and can contribute to organizational competitiveness, profitability, and financial performance. Mobile payment systems enhance transaction speed and convenience, while Digital Lending Platforms provide alternative financing mechanisms. Similarly, Digital Financial Management Tools facilitate budgeting, bookkeeping, and financial decision-making, whereas Digital Market Platforms provide businesses with opportunities to reach customers beyond geographical boundaries. These developments are consistent with the project's proposition that Fintech can reduce transaction costs, strengthen financial inclusion, and enhance MSME growth opportunities.

However, technological adoption does not automatically translate into superior enterprise performance. The benefits derived from Fintech depend partly on enterprises' capacity to acquire, integrate, and effectively utilize digital technologies. Digital financial literacy is particularly important because enterprises require appropriate knowledge and competencies to utilize digital financial services effectively. Santos, Normawati, and Latifah (2025) emphasize the importance of both digital finance accessibility and digital financial literacy in strengthening SME performance. This argument complements Mwachia, Kimaku, and Makungu's (2023) findings that organizational agility capabilities are important determinants of organizational performance. Accordingly, technology should be understood not merely as an available resource but as a capability whose value depends upon an organization's ability to effectively integrate it into its operations.

Across Africa, Fintech has increasingly provided mechanisms for addressing persistent financial exclusion and operational constraints among MSMEs. Many enterprises continue to experience restricted access to formal credit, high transaction costs, inadequate financial infrastructure, and limited market access. Mobile money, Digital Lending Platforms, and digital payments have therefore provided alternative mechanisms through which enterprises can transact, mobilize resources, and obtain financing. However, differences in infrastructure, internet accessibility, digital capabilities, and financial literacy mean that the benefits of Fintech are not uniformly distributed. This is particularly significant in developing economies where the digital divide can constrain enterprises' capacity to exploit technological opportunities.

Kenya presents a particularly important context for examining Fintech because of the extensive diffusion of mobile-based financial services. Mobile money has transformed how individuals and businesses transfer, receive, and store money. Suri and Jack (2016) demonstrated the substantial long-term socioeconomic effects associated with access to mobile money in Kenya, including increased consumption and reductions in extreme poverty. At the enterprise level, mobile payment systems can facilitate convenient payments, reduce reliance on cash, enhance transaction efficiency, and strengthen customer relationships. Recent Kenyan research similarly indicates that digital payment systems can positively influence SME financial performance through improvements in sales, profitability, operational efficiency, customer satisfaction, and financial record management.

Fintech has also expanded financing opportunities for MSMEs that experience difficulties obtaining conventional bank credit. Traditional financing remains challenging because SMEs may struggle to satisfy lending requirements, a problem reflected in Kenyan research on commercial-bank lending to SMEs (Shikumo & Mirie, 2020). Digital lending therefore provides an alternative through which MSMEs can obtain relatively rapid and convenient financing for working capital, inventory acquisition, operational expenditure, and expansion. Recent research among MSMEs in Nairobi City County specifically identifies access to credit as a continuing constraint and examines mobile lending, digital banking, and web-based Fintech platforms as mechanisms for expanding financing opportunities (Terry, Kithandi, & Onchomba, 2025).

At the same time, Fintech adoption creates potential risks and constraints. Digital borrowing may expose enterprises to high borrowing costs, short repayment periods, and over-indebtedness, while digital transactions can expose businesses to fraud, cybersecurity threats, privacy concerns, and unauthorized transactions. Consequently, trust and perceived security become important considerations in determining whether business owners adopt and continuously use digital financial services. Internet access is equally important because most Fintech applications require reliable digital connectivity. These considerations justify examining Digital Literacy, Trust and Security Concerns, and Internet Access as contextual factors capable of altering the strength of the relationship between Fintech adoption and MSME performance.

The importance of organizational capabilities in converting technological resources into improved performance is also supported by broader Kenyan management research. Lerionka and Kimaku (2023) found that strategic alignment dimensions influenced organizational performance among privately owned meat-processing companies in Nairobi County. Similarly, Chang'alwa and Kimaku (2022) demonstrated the importance of organizational strategic choices, including product development and strategic partnerships, in explaining performance within Kenya's coffee industry. Although these studies were not specifically concerned with Fintech, they reinforce the Resource-Based View proposition underlying the present study: organizational resources and capabilities generate performance advantages when they are effectively deployed and aligned with organizational requirements.

Empirical evidence specifically examining digital financial innovation among SMEs in Nairobi also supports the importance of the present study. Musa and Njeru (2023), for instance, examined digital payment systems, mobile banking, and online lending in relation to the financial performance of SMEs in Nairobi City Centre. More recent Kenyan evidence similarly indicates that MSMEs adopting digital technologies can realize superior performance relative to non-adopters and emphasizes the importance of training and affordable, reliable ICT infrastructure (Njoroge & Murunga, 2025). These findings demonstrate the growing importance of digitalization while simultaneously suggesting that technological infrastructure and user capabilities remain critical conditions for realizing its benefits.

Despite this growing literature, an important empirical and contextual gap remains. Much of the available research examines individual technologies, general digitalization, financial inclusion, or specific dimensions such as digital payments and lending. Comparatively limited evidence simultaneously examines Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms and determines their respective contributions to the broader performance of MSMEs in Nairobi County. Furthermore, previous studies provide insufficient explanation of whether contextual conditions such as Digital Literacy, Trust and Security Concerns, and Internet Access strengthen or weaken these relationships. The project's problem statement similarly identifies this lack of integrated empirical evidence as an important knowledge gap.

Consequently, this study examines the effect of Financial Technology adoption on the performance of MSMEs in Nairobi County, Kenya. Specifically, it evaluates the effects of Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital

Market Platforms and further determines the moderating influence of Digital Literacy, Trust and Security Concerns, and Internet Access. By integrating these dimensions within a single empirical framework, the study provides evidence that can inform MSME owners, financial institutions, Fintech providers, regulators, and policymakers seeking to leverage digital technologies to improve enterprise productivity, competitiveness, financial inclusion, and long-term sustainability.

Statement of the Problem

Micro, Small, and Medium Enterprises (MSMEs) are critical to Kenya's socio-economic development through employment creation, income generation, innovation, entrepreneurship, and poverty reduction. The sector contributes approximately 40% of Kenya's Gross Domestic Product and accounts for more than 80% of employment opportunities (KNBS, 2022; IFC, 2023). Nairobi County hosts a substantial concentration of MSMEs and serves as an important centre of entrepreneurial and commercial activity. Despite their economic significance, many MSMEs continue to experience persistent performance challenges, including limited access to affordable finance, high transaction costs, inadequate financial management practices, operational inefficiencies, and restricted market access. These constraints undermine profitability, growth, competitiveness, and long-term sustainability (World Bank, 2023).

Financial Technology (Fintech) has emerged as a potentially transformative mechanism for addressing these challenges. Kenya has experienced considerable growth in digital financial innovations, including Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms. Nairobi County, in particular, operates within a relatively advanced Fintech ecosystem. These technologies are expected to enhance access to finance, reduce transaction costs, improve financial management, strengthen operational efficiency, and broaden market opportunities for MSMEs (CBK, 2023; World Bank, 2022; Demirgüç-Kunt et al., 2022). Nevertheless, the increasing availability and adoption of Fintech solutions have not eliminated the financial and operational difficulties experienced by MSMEs, raising questions regarding the extent to which Fintech adoption actually translates into improved enterprise performance.

Existing empirical literature has not adequately resolved this concern. Previous studies have largely examined the general benefits of Fintech, focused on individual digital technologies, or concentrated on large organizations and the banking sector, with comparatively limited attention to MSMEs operating in urban environments such as Nairobi County (Omondi & Muturi, 2021; FSD Kenya, 2023). Furthermore, findings regarding the relationship between Fintech adoption and MSME performance remain mixed. This creates an empirical gap regarding the relative contribution of specific Fintech dimensions, Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms, to MSME performance.

More importantly, adoption alone may not guarantee performance improvements because the effectiveness of Fintech may depend on the environment and capabilities within which the technologies are utilized. Existing studies have given comparatively limited attention to Digital Literacy, Trust and Security Concerns, and Internet Access as factors that may alter the strength of the relationship between Fintech adoption and MSME performance. Limited digital skills may constrain effective utilization, security concerns may discourage continued use, while unreliable internet connectivity may restrict access to digital financial services. Consequently, a contextual knowledge gap exists regarding whether these factors strengthen or weaken the performance benefits associated with Fintech adoption.

Therefore, despite the growing availability of digital financial technologies, it remains insufficiently established how the different dimensions of Fintech adoption collectively and independently influence MSME performance in Nairobi County and how contextual factors moderate these relationships. This study addresses these empirical and contextual gaps by examining the effects of Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms on MSME performance and determining the moderating influence of Digital Literacy, Trust and Security Concerns, and Internet Access. The findings are expected to provide evidence for MSME owners, financial institutions, Fintech developers, and policymakers seeking to enhance enterprise productivity, competitiveness, and sustainability through effective Fintech adoption.

Objective of the Study

The study was guided by two objectives:

- i). To determine the effect of Mobile Payment Platforms on the performance of MSMEs in Nairobi County.
- ii). To determine the effect of Digital Lending Platforms on the performance of MSMEs in Nairobi County.
- iii). To determine the effect of Digital Financial Management Tools on the performance of MSMEs in Nairobi County.
- iv). To examine the effect of Digital Market Platforms on the performance of MSMEs in Nairobi County.
- v). To examine whether Digital Literacy, Trust and Security Concerns, and Internet Access moderate the relationship between Fintech dimensions and MSME performance.

Research Hypotheses

The study sought to answer the following research hypotheses:

- i). **H01:** Mobile Payment Platforms do not have a statistically significant effect on the performance of MSMEs in Nairobi County.
- ii). **H02:** Digital Lending Platforms do not have a statistically significant effect on the performance of MSMEs in Nairobi County.
- iii). **H03:** Digital Financial Management Tools do not have a statistically significant effect on the performance of MSMEs in Nairobi County.
- iv). **H04:** Digital Market Platforms do not have a statistically significant effect on the performance of MSMEs in Nairobi County.
- v). **H05:** Digital Literacy, Trust and Security Concerns, and Internet Access do not have a statistically significant moderating effect on the relationship between Financial Technology (Fintech) adoption and the performance of MSMEs in Nairobi County.

REVIEW OF LITERATURE

The study was anchored on three complementary theories: Innovation Diffusion Theory (IDT), Technology Acceptance Model (TAM), and Resource-Based View (RBV) Theory. Together, the theories provide a foundation for explaining the adoption, utilization, and performance implications of Financial Technology (Fintech) among Micro, Small, and Medium Enterprises (MSMEs).

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Innovation Diffusion Theory (IDT), developed by Rogers (1962) and subsequently refined by Rogers (2003), explains how innovations are communicated and adopted over time within a social system. The theory identifies five attributes influencing innovation adoption: relative advantage, compatibility, complexity, trialability, and observability. Applied to this study, MSMEs are more likely to adopt Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms when they perceive them as beneficial, compatible with existing operations, easy to use, testable, and capable of producing observable business benefits. Thus, IDT explains differences in the adoption and diffusion of Fintech innovations among MSMEs.

The Technology Acceptance Model (TAM), developed by Davis (1986, 1989), explains technology adoption primarily through perceived usefulness and perceived ease of use. MSME owners and managers are more likely to adopt Fintech when they believe that it improves business performance and is relatively easy to integrate into daily operations. In this study, TAM explains behavioural decisions concerning the acceptance and continued utilization of Fintech. It also provides justification for considering Digital Literacy, Trust and Security Concerns, and Internet Access because these conditions can influence users' ability and willingness to effectively utilize digital financial technologies.

The Resource-Based View (RBV), advanced by Wernerfelt (1984) and Barney (1991), argues that superior organizational performance results from effectively utilizing valuable, rare, inimitable, and non-substitutable resources and capabilities. From this perspective, Fintech represents an organizational capability through which MSMEs can improve transactions, financial management, access to financing, customer engagement, and market reach. However, the value derived from Fintech depends on how effectively enterprises integrate digital technologies with their managerial capabilities, skills, and organizational processes.

Collectively, IDT explains the diffusion and adoption of Fintech, TAM explains its acceptance and utilization, while RBV explains how Fintech becomes a strategic organizational capability that enhances MSME performance. Their integration therefore provides a comprehensive theoretical basis for examining Fintech adoption and MSME performance.

The conceptual framework illustrates the relationship between Financial Technology adoption and MSME performance in Nairobi County. Fintech adoption constitutes the independent variable and is operationalized through four dimensions: Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms. MSME performance constitutes the dependent variable, reflected through indicators such as sales growth, operational efficiency, profitability, financial record management, budgeting and planning, and competitiveness. The framework further incorporates Digital Literacy, Trust and Security Concerns, and Internet Access as moderating variables expected to influence the strength of the relationship between Fintech adoption and MSME performance.

Empirical literature reviewed in the study demonstrates growing evidence that Financial Technology adoption influences MSME performance, although the magnitude and nature of this relationship vary across Fintech dimensions and contexts. The review focused on Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms, together with the moderating influence of Digital Literacy, Trust and Security Concerns, and Internet Access.

Studies on Mobile Payment Platforms generally indicate that mobile-based transactions enhance enterprise performance by improving transaction speed, reducing cash-handling risks, lowering transaction costs, and increasing customer convenience. In Kenya, mobile money has become particularly important to MSMEs by facilitating daily transactions and integrating enterprises into formal financial systems. Nevertheless, challenges associated with transaction charges, fraud, and security risks may constrain the benefits derived from these platforms.

Empirical evidence on Digital Lending Platforms indicates that digital credit enhances access to working capital, particularly for enterprises that experience difficulties accessing conventional bank financing. Platforms providing rapid and collateral-free credit enable MSMEs to purchase inventory, finance operational expenditure, and respond to emerging market opportunities. However, high interest rates, short repayment periods, and over-indebtedness can undermine the sustainability of digital borrowing.

Research on Digital Financial Management Tools suggests that digital applications enhance bookkeeping, budgeting, financial planning, reporting, and managerial decision-making. By providing timely and accurate financial information, these technologies can improve financial control and operational efficiency. Similarly, Digital Market Platforms enable MSMEs to broaden customer reach, enhance market visibility, strengthen customer engagement, and access markets beyond their physical locations. The project's empirical review therefore treats both technologies as important mechanisms through which digitalization can improve enterprise performance.

The reviewed literature further indicates that Fintech-performance outcomes are conditioned by contextual factors. Digital Literacy influences MSMEs' capacity to understand and effectively utilize Fintech applications; Trust and Security Concerns affect confidence in digital financial transactions; while reliable Internet Access facilitates uninterrupted utilization of digital platforms. Despite growing empirical evidence, previous studies have frequently examined individual Fintech technologies or broad Fintech adoption rather than simultaneously assessing the four dimensions and their moderating conditions. The study therefore addresses this empirical and contextual gap by examining their combined and individual effects on MSME performance in Nairobi County.

Conceptual Framework

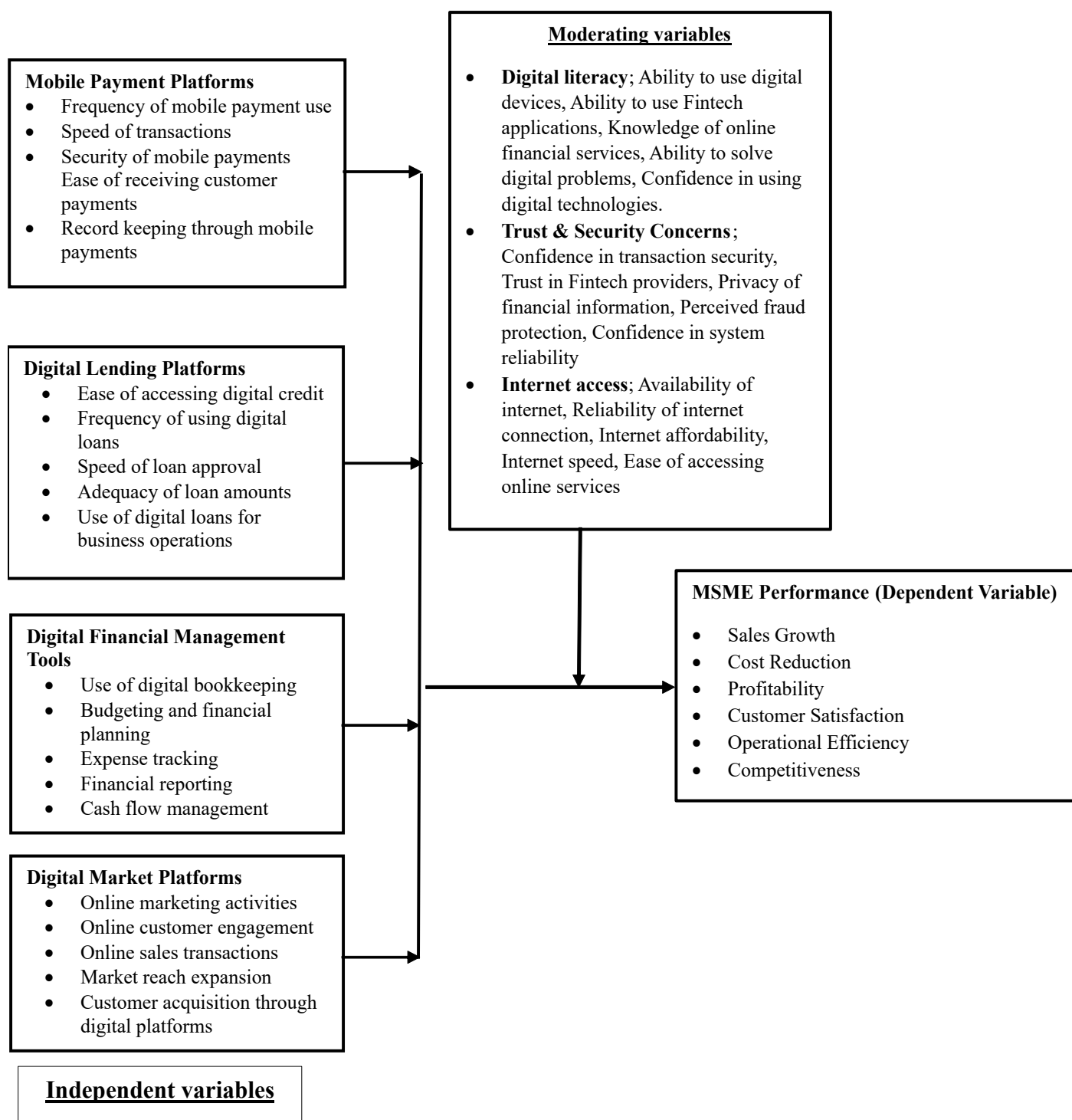


Figure 2.1: Conceptual Framework

MATERIALS AND METHODS

Research Design

The study adopted a descriptive cross-sectional survey research design to examine the effect of Financial Technology adoption on the performance of MSMEs in Nairobi County. The design facilitated the collection of data from respondents at a single point in time and enabled the assessment of relationships between Fintech dimensions, moderating factors, and MSME performance without manipulating the study variables.

Target Population and Sampling Technique

The study targeted 1,000 registered MSMEs operating in Nairobi County, drawn from different business sectors, including retail, services, manufacturing, hospitality, and transport. The units of observation comprised MSME owners, managers, or individuals responsible for financial

and technological decision-making within the enterprises. Using Yamane's formula, a sample size of 286 MSMEs was determined. The study employed stratified random sampling to ensure adequate representation of MSMEs across the different business sectors. Stratification enhanced representativeness by accommodating variations among the business categories, while random selection within the respective strata minimized selection bias and provided eligible MSMEs with an appropriate opportunity to participate in the study.

Instrumentation and Data Collection Procedure

Primary data were collected using a structured questionnaire administered to owners and managers of the sampled MSMEs in Nairobi County. The questionnaire captured information on Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, Digital Market Platforms, moderating factors, and MSME performance. The instrument was subjected to a pilot study to establish its validity and reliability before the main data collection exercise. Questionnaires were subsequently administered to the selected respondents following the established research procedures. Of the 272 questionnaires distributed, 201 were successfully completed and returned, representing a 73.9% response rate, which was considered adequate for the subsequent statistical analysis.

Data analysis

Data collected from the respondents were analyzed using the Statistical Package for the Social Sciences (SPSS), Version 27. Both descriptive and inferential statistical techniques were employed in accordance with the study objectives and hypotheses. Descriptive statistics were used to summarize and describe respondents' characteristics and patterns relating to the study variables. These provided an overview of the levels of adoption of Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms, as well as MSME performance and the moderating factors.

Inferential analysis involved Pearson's Product Moment Correlation and Hierarchical Moderated Multiple Regression Analysis. Pearson correlation analysis was applied to establish the direction and strength of associations between the Fintech dimensions and MSME performance. Hierarchical multiple regression was used to determine the individual and combined effects of the four Fintech dimensions on MSME performance. The analysis further incorporated Digital Literacy, Trust and Security Concerns, and Internet Access to determine their moderating influence on the relationship between Fintech adoption and MSME performance. Interaction terms were incorporated to assess whether these contextual factors significantly changed the strength of the relationships. The resulting regression coefficients, model explanatory power, and statistical significance levels were used to test the study hypotheses and draw conclusions regarding the relationships among the variables.

Regression Models

Model 1: Direct Effects Model

$$\text{MSME Performance} = \beta_0 + \beta_1 \text{MPP} + \beta_2 \text{DLP} + \beta_3 \text{DFMT} + \beta_4 \text{DMP} + \epsilon$$

Model 2: Moderation Model

$$\text{MSME Performance} = \beta_0 + \beta_1 \text{MPP} + \beta_2 \text{DLP} + \beta_3 \text{DFMT} + \beta_4 \text{DMP} + \beta_5 \text{DL} + \beta_6 \text{TSC} + \beta_7 \text{IA} + \epsilon$$

Model 3: Interaction Model

$$\begin{aligned} \text{MSME Performance} = & \beta_0 + \beta_1 \text{MPP} + \beta_2 \text{DLP} + \beta_3 \text{DFMT} + \beta_4 \text{DMP} + \beta_5 \text{DL} + \beta_6 \text{TSC} + \beta_7 \text{IA} + \beta_8 (\text{DPP} \times \text{DL}) + \beta_9 (\text{DLP} \times \text{DL}) + \beta_{10} (\text{DFMT} \times \text{DL}) + \beta_{11} \\ & (\text{DMP} \times \text{DL}) + \beta_{12} (\text{DPP} \times \text{TSC}) + \beta_{13} (\text{DLP} \times \text{TSC}) + \beta_{14} (\text{DFMT} \times \text{TSC}) + \beta_{15} (\text{DMP} \times \text{TSC}) + \beta_{16} (\text{DPP} \times \text{IA}) + \beta_{17} (\text{DLP} \times \text{IA}) + \beta_{18} (\text{DFMT} \times \text{IA}) + \beta_{19} \\ & (\text{DMP} \times \text{IA}) + \epsilon \end{aligned}$$

Where:

β_0 = Constant.

β_1 – β_4 = Direct effects of the four Fintech adoption dimensions.

β_5 – β_7 = Direct effects of the moderating variables.

β_8 – β_{19} = Interaction effects between each Fintech adoption dimension and each moderating

MPP - Mobile Payment Platforms

DLP - Digital Lending Platforms

DFMT-Digital Financial Management Tools

DMP- Digital Market Platforms

DL - Digital Literacy

TSC - Trust and Security Concerns

IC - Internet Access

ϵ - Error term,

Ethical Considerations

Ethical approval for the study was obtained from the Ethics Review Committee of Taita Taveta University prior to data collection. Participation was voluntary, and respondents provided informed consent after being adequately informed about the purpose of the study. Respondents' anonymity and confidentiality were safeguarded through the use of unique identification codes, while collected data were securely stored with access restricted to authorized persons. Participants were also informed of their right to withdraw from the study without any adverse consequences. Throughout the data collection process, enumerators adhered to established ethical standards by maintaining professionalism, respecting participants' rights, and ensuring confidentiality in all interactions.

RESULTS

A total of 272 questionnaires were issued to respondents, with 201 filled and returned. The returned questionnaires formed a response rate of 73.9% as shown in Table 1.

Table 1: Response Rate

Questionnaire	Frequency	Percent
Returned	201	73.9
Non returned	71	26.1
Total	272	100.0

Demographic Information Analysis**Table 2: Demographic Characteristics of Respondents**

Characteristic / Category	Frequency	Percent (%)
Gender		
Male	100	49.8
Female	101	50.2
Age Bracket		
Below 25	14	7.0
25 - 34	60	29.9
35 - 44	58	28.9
45 - 54	41	20.4
Over 55	28	13.9
Highest Level of Education		
Secondary	42	20.9
Diploma	61	30.3
Bachelor	90	44.8
Post Graduate	8	4.0
Business Category		
Micro	79	39.3
Small	71	35.3
Medium	51	25.4
Sector of Operation		
Retail	55	27.4
Service	55	27.4
Manufacturing	41	20.4
Hospitality	23	11.4
Transport	27	13.4
Years of Operation		
<1	16	8.0
1–3	64	31.8
4–7	52	25.9
8–10	41	20.4
>10	28	13.9
Number of Employees		

1-5	79	39.3
6-10	69	34.3
11-50	53	26.4
Total	201	100.0

Note. N = 201 unless otherwise indicated by missing values for a given item. Source: Field data (2026).

Key Findings

The descriptive analysis was based on 201 MSMEs in Nairobi County and examined four dimensions of Financial Technology adoption, Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms, together with MSME performance and the moderating factors of Digital Literacy, Trust and Security Concerns, and Internet Access.

Mobile Payment Platforms recorded particularly strong positive perceptions across all performance indicators. Specifically, 85.6% of respondents agreed that mobile payments improved customer satisfaction and another 85.6% reported improved operational efficiency. Similarly, 82.6% associated mobile payments with increased sales growth, 82.1% with improved profitability, 81.1% with enhanced competitiveness, and 79.6% with reduced transaction and operating costs. Thus, more than three-quarters of respondents reported positive performance benefits across all six indicators, making mobile payments one of the most strongly perceived Fintech dimensions.

Digital Lending Platforms demonstrated a moderately positive contribution to MSME performance. The highest agreement was recorded for operational efficiency at 71.2%, indicating that timely access to working capital helped businesses maintain their operations. This was followed by sales growth (69.2%), profitability (66.7%), customer satisfaction (66.7%), competitiveness (64.7%), and cost reduction (62.2%). Cost reduction therefore recorded the weakest perception, with 20.9% of respondents remaining neutral and 16.9% disagreeing that digital lending reduced financing costs. These results suggest that although digital lending improved access to financing, borrowing costs and repayment obligations constrained its benefits for some MSMEs.

The adoption of Digital Financial Management Tools (DFMTs) was also positively perceived, although at comparatively moderate levels. Operational efficiency recorded the highest agreement at 68.2%, followed by customer satisfaction (64.2%), competitiveness (63.2%), profitability (62.2%), cost reduction (60.2%), and sales growth (59.2%). The findings therefore indicate that DFMTs contributed most strongly through better financial record management and managerial decision-making. However, relatively high neutral and disagreement responses suggest that their adoption and effective utilization remained moderate among MSMEs.

Digital Market Platforms showed strong positive perceptions across all performance dimensions. Sales growth recorded the highest level of agreement at 80.1%, followed by competitiveness (77.6%), customer satisfaction (77.1%), operational efficiency (77.1%), profitability (76.1%), and cost reduction (75.1%). The results indicate that digital market platforms contributed to MSME performance primarily by expanding market reach, increasing product visibility, facilitating customer engagement and reducing marketing and customer-acquisition costs.

Regarding overall MSME performance, all six indicators recorded mean scores close to or above 4.00. Customer satisfaction had the highest mean ($M = 4.12$, $SD = 0.82$), followed by sales growth ($M = 4.10$, $SD = 0.80$), profitability ($M = 4.05$, $SD = 0.88$), and competitiveness ($M = 4.02$, $SD = 0.91$). Operational efficiency ($M = 3.95$, $SD = 0.90$) and cost reduction ($M = 3.90$, $SD = 0.96$) were slightly lower but remained favourable. The standard deviations ranged from 0.80 to 0.96, indicating moderate variability in respondents' perceptions. Overall, the high mean scores demonstrate that respondents generally associated Fintech adoption with improvements in MSME performance.

The descriptive statistics also demonstrated the importance of the moderating factors. For Digital Literacy, the ability to learn and adopt new digital financial technologies recorded the highest score ($M = 3.95$, $SD = 0.84$), followed by the perception that higher digital literacy strengthens Fintech's contribution to business performance ($M = 3.92$, $SD = 0.86$). Employees' digital skills recorded $M = 3.88$, $SD = 0.89$, while respondents' own ability to use Fintech effectively recorded $M = 3.87$, $SD = 0.99$.

For Trust and Security, trust in the security of Fintech platforms recorded the highest mean among the moderating items ($M = 3.99$, $SD = 0.89$), while greater trust enhancing Fintech's contribution to performance recorded $M = 3.96$, $SD = 0.88$. Confidence that business information was secure recorded $M = 3.91$, $SD = 0.92$. However, concerns about fraud recorded a lower mean and greater dispersion ($M = 3.24$, $SD = 1.21$), indicating considerable differences among MSMEs regarding perceived security risks.

Finally, Internet Access was generally perceived as important for Fintech utilization. Reliable internet access recorded $M = 3.89$, $SD = 0.92$, while affordability of internet services recorded $M = 3.81$, $SD = 0.95$. Poor internet connectivity as a limitation recorded $M = 3.37$, $SD = 1.20$, suggesting moderate agreement but substantial variation in the connectivity challenges experienced by MSMEs. Overall, the descriptive results indicate that Fintech adoption was positively associated with perceived MSME performance, with Mobile Payment Platforms and Digital Market Platforms showing particularly strong perceived benefits, while digital literacy, trust and reliable internet connectivity provided important enabling conditions for effective utilization of Fintech solutions.

Table 3: Level of Mobile Payment Platforms Adoption on MSMEs performance

Statement	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
The use of Mobile Payment Platforms has increased the sales growth of my business	82 (40.8%)	84 (41.8%)	23 (11.4%)	9 (4.5%)	3 (1.5%)
The use of Mobile Payment Platforms has reduced transaction and operating costs in my business	74 (36.8%)	86 (42.8%)	25 (12.4%)	11 (5.5%)	5 (2.5%)

The use of Mobile Payment Platforms has improved the profitability of my business.	82 (40.8%)	83 (41.3%)	22 (10.9%)	10 (5.0%)	4 (2.0%)
The use of Mobile Payment Platforms has improved customer satisfaction by providing convenient payment options.	85 (42.3%)	87 (43.3%)	19 (9.5%)	8 (4.0%)	2 (1.0%)
The use of Mobile Payment Platforms has improved the efficiency of daily business operations.	84 (41.8%)	88 (43.8%)	20 (10.0%)	7 (3.5%)	2 (1.0%)
The use of Mobile Payment Platforms has enhanced the competitiveness of my business.	78 (38.8%)	85 (42.3%)	26 (12.9%)	9 (4.5%)	3 (1.5%)

Table 4: Level of Digital Lending Adoption on MSMEs Performance

Statement	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Access to Digital Lending Platforms has enabled my business to increase sales.	57 (28.4%)	82 (40.8%)	37 (18.4%)	18 (9.0%)	7 (3.5%)
Digital Lending Platforms have reduced the cost of obtaining business financing.	50 (24.9%)	75 (37.3%)	42 (20.9%)	24 (11.9%)	10 (5.0%)
Digital Lending Platforms have improved the profitability of my business	55 (27.4%)	79 (39.3%)	40 (19.9%)	19 (9.5%)	8 (4.0%)
Digital Lending Platforms have improved the efficiency of business operations by providing timely working capital.	60 (29.9%)	83 (41.3%)	35 (17.4%)	17 (8.5%)	6 (3.0%)
Access to Digital Lending Platforms has enabled my business to better meet customer needs.	53 (26.4%)	81 (40.3%)	39 (19.4%)	20 (10.0%)	8 (4.0%)
Access to Digital Lending Platforms has strengthened the competitiveness of my business.	52 (25.9%)	78 (38.8%)	41 (20.4%)	21 (10.4%)	9 (4.5%)

Table 5: Level of Digital Financial Management Tools (DFMT) Adoption on MSMEs Performance

Statement	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Digital Financial Management Tools have contributed to increased sales through better financial planning.	47 (23.4%)	72 (35.8%)	41 (20.4%)	29 (14.4%)	12 (6.0%)
Digital Financial Management Tools have reduced administrative and operating costs.	47 (23.4%)	74 (36.8%)	43 (21.4%)	27 (13.4%)	10 (5.0%)
Digital Financial Management Tools have improved the profitability of my business.	49 (24.4%)	76 (37.8%)	40 (19.9%)	25 (12.4%)	11 (5.5%)
Digital Financial Management Tools have improved customer satisfaction through better financial and service management.	50 (24.9%)	79 (39.3%)	39 (19.4%)	24 (11.9%)	9 (4.5%)
Digital Financial Management Tools have improved the efficiency of financial record management and decision-making.	55 (27.4%)	82 (40.8%)	35 (17.4%)	21 (10.4%)	8 (4.0%)
Digital Financial Management Tools have improved the competitiveness of my business.	49 (24.4%)	78 (38.8%)	40 (19.9%)	24 (11.9%)	10 (5.0%)

Table 6: Level of Digital Market Platform Adoption on MSMEs Performance

Statement	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
The use of Digital Market Platforms has increased the sales growth of my business.	78 (38.8%)	83 (41.3%)	28 (13.9%)	9 (4.5%)	3 (1.5%)
Digital Market Platforms have reduced marketing and customer acquisition costs.	64 (31.8%)	87 (43.3%)	31 (15.4%)	14 (7.0%)	5 (2.5%)
Digital Market Platforms have improved the profitability of my business.	72 (35.8%)	81 (40.3%)	30 (14.9%)	14 (7.0%)	4 (2.0%)

Digital Market Platforms have improved customer satisfaction through better customer interaction and service delivery.	69 (34.3%)	86 (42.8%)	29 (14.4%)	12 (6.0%)	5 (2.5%)
Digital Market Platforms have improved the efficiency of marketing and business operations.	70 (34.8%)	85 (42.3%)	28 (13.9%)	13 (6.5%)	5 (2.5%)
Digital Market Platforms have enhanced the competitiveness of my business.	74 (36.8%)	82 (40.8%)	28 (13.9%)	12 (6.0%)	5 (2.5%)

Table 7: Descriptive Statistics for MSMEs Performance

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Sales Growth	201	2	5	4.10	0.80
Cost Reduction	201	2	5	3.90	0.96
Profitability	201	2	5	4.05	0.88
Customer Satisfaction	201	2	5	4.12	0.82
Operational Efficiency	201	2	5	3.95	0.90
Competitiveness	201	2	5	4.02	0.91

Table 8: Descriptive Statistics for Moderating Factors (Digital literacy, Trust & Security Concerns and Internet Access)

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Digital Literacy					
My digital skills enable me to effectively use Fintech applications to improve the overall performance of my business.	201	2	5	3.87	0.99
Employees in my business possess adequate digital skills to maximize the benefits of Fintech adoption.	201	2	5	3.88	0.89
Higher digital literacy has strengthened the positive contribution of Fintech adoption to my business performance.	201	2	5	3.92	0.86
I can easily learn and adopt new digital financial technologies that improve business performance.	201	2	5	3.95	0.84
Trust and Security Concerns					
My trust in the security of Fintech platforms encourages their continued use in my business.	201	2	5	3.99	0.89
Concerns about fraud reduce my willingness to use Fintech services	201	1	5	3.24	1.21
I believe that my business information is secure when using Fintech platforms.	201	2	5	3.91	0.92
Greater trust in Fintech platforms enhances the contribution of Fintech adoption to my business performance	201	2	5	3.96	0.88
Internet Access					
Reliable internet access enables my business to effectively use Fintech applications.	201	2	5	3.89	0.92
The affordability of internet services encourages the use of Fintech in my business.	201	2	5	3.81	0.95
Poor internet connectivity limits the effective use of Fintech applications.	201	1	5	3.37	1.20

Correlation Analysis

Pearson Product-Moment Correlation Analysis was conducted to establish the strength and direction of the relationships between the four dimensions of Financial Technology (Fintech) adoption and the performance of MSMEs in Nairobi County. The results showed that all four Fintech dimensions were positively correlated with MSME performance, although the strength of the relationships varied considerably across the dimensions.

Mobile Payment Platforms (MPP) recorded the strongest positive relationship with MSME performance, with a correlation coefficient of $r = 0.621$. This represents a moderately strong positive relationship, suggesting that higher adoption and utilization of mobile payment platforms was associated with better MSME performance. Thus, enterprises that increasingly utilized mobile payment solutions tended to report better outcomes in sales growth, profitability, customer satisfaction, operational efficiency, cost management and competitiveness.

Digital Market Platforms (DMP) recorded the second-strongest positive correlation with MSME performance at $r = 0.587$. The moderately strong relationship suggests that greater utilization of digital market platforms was associated with improved MSME performance. This supports the descriptive findings showing that digital market platforms enhanced market reach, customer interaction and business competitiveness.

Similarly, Digital Lending Platforms (DLP) exhibited a positive correlation with MSME performance of $r = 0.534$. This moderate positive relationship indicates that increased access to and utilization of digital credit was associated with improved enterprise performance. Digital lending may therefore support MSMEs by facilitating access to working capital required to finance inventory, maintain operations and respond to business opportunities.

Digital Financial Management Tools (DFMT) recorded the weakest positive correlation with MSME performance at $r = 0.296$. Although positive, this relationship was substantially weaker than those observed for mobile payments, digital markets and digital lending. The finding suggests that increased use of digital financial management tools was associated with improved MSME performance, but the relationship was relatively modest. Overall, the correlation coefficients ranked the Fintech dimensions as Mobile Payment Platforms ($r = 0.621$), Digital Market Platforms ($r = 0.587$), Digital Lending Platforms ($r = 0.534$), and Digital Financial Management Tools ($r = 0.296$). The findings therefore demonstrate that greater Fintech adoption was consistently associated with better MSME performance, with mobile payment platforms exhibiting the strongest relationship. However, correlation establishes association rather than causation; consequently, the regression analysis was necessary to determine the predictive influence of the individual Fintech dimensions on MSME performance.

Table 9: Correlation Matrix for Study Variables

Variables	MPP	DLP	DFMT	DMP	Performance	DL	TSC	IA
MPP	1							
DLP	0.482	1						
DFMT	0.391	0.417	1					
DMP	0.503	0.445	0.388	1				
Performance	0.621	0.534	0.296	0.587	1			
DL	0.442	0.386	0.355	0.468	0.511	1		
TSC	0.417	0.328	0.291	0.402	0.473	0.396	1	
IA	0.438	0.361	0.302	0.449	0.492	0.421	0.385	1

Regression Analysis

The findings from Model 1 demonstrate that Financial Technology adoption plays an important role in explaining the performance of MSMEs in Nairobi County. The model's R^2 of 0.551 means that the four Fintech dimensions, Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms, jointly accounted for 55.1% of the variation in MSME performance. This represents substantial explanatory power, while the remaining 44.9% can be attributed to other factors outside the model.

At the individual-variable level, Mobile Payment Platforms emerged as the strongest predictor of MSME performance ($\beta = 0.382$, $p < 0.05$). This implies that, holding the other Fintech dimensions constant, greater adoption of mobile payment platforms was associated with improved MSME performance. The finding may be explained by the ability of mobile payment technologies to facilitate faster transactions, improve payment convenience, reduce reliance on cash and support efficient business operations. This result is consistent with the descriptive findings, where more than three-quarters of respondents reported improvements across all six performance indicators following mobile payment adoption.

Digital Market Platforms were the second-strongest predictor ($\beta = 0.301$, $p < 0.05$). This indicates that increased utilization of digital marketing and trading platforms was associated with better MSME performance. Such platforms enable businesses to reach wider markets, increase product visibility, interact more effectively with customers and reduce customer-acquisition costs. The descriptive findings reinforce this result, with 80.1% of respondents reporting increased sales growth and 77.6% reporting improved competitiveness from using digital market platforms.

Digital Lending Platforms also positively and significantly predicted MSME performance ($\beta = 0.244$, $p < 0.05$). The finding suggests that digital credit contributes to enterprise performance by providing MSMEs with relatively timely access to working capital. This can enable businesses to replenish inventories, maintain day-to-day operations and exploit emerging business opportunities. Nevertheless, its effect was weaker than those of mobile payments and digital market platforms, consistent with the descriptive results showing concerns regarding financing costs and repayment obligations.

Finally, Digital Financial Management Tools recorded the weakest, though still positive and statistically significant, effect ($\beta = 0.118$, $p < 0.05$). This indicates that tools supporting digital accounting, budgeting, record keeping and financial decision-making contributed to MSME performance, but their contribution was comparatively smaller. This finding corresponds with the descriptive analysis, which showed relatively moderate utilization and perceived benefits of these tools.

Overall, Model 1 establishes that all four Fintech dimensions positively and significantly predicted MSME performance, but their relative importance differed. The effects ranked as Mobile Payment Platforms ($\beta = 0.382$) > Digital Market Platforms ($\beta = 0.301$) > Digital Lending Platforms ($\beta = 0.244$) > Digital Financial Management Tools ($\beta = 0.118$). Thus, the findings suggest that strengthening Fintech adoption, particularly mobile payments and digital market platforms, is associated with better performance among MSMEs in Nairobi County.

Table 10: Model Summary for the Joint (Combined) Regression Model

Model	R	R Square	Adjusted R Square	Std. Error
1	0.742	0.551	0.542	0.421

The results of Model 1 showed that the four dimensions of Financial Technology adoption collectively had substantial explanatory power in predicting MSME performance. The regression model recorded an R^2 of 0.551, indicating that 55.1% of the variation in MSME performance was explained jointly by Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms. The remaining 44.9% of the variation was attributable to other factors not incorporated in Model 1. Overall, the results demonstrate that Fintech adoption represents an important predictor of MSME performance in Nairobi County.

Table 11: Joint (Combined) Regression Coefficient Results

Variable	Beta (β)	t-value	Sig.
Constant	0.841	3.214	0.002
MPP	0.382	5.981	0.000
DLP	0.244	4.123	0.000
DFMT	0.118	2.016	0.045
DMP	0.301	4.887	0.000

The regression coefficients established that all four dimensions of Fintech adoption had positive and statistically significant effects on MSME performance ($p < 0.05$), although their relative contributions differed. Mobile Payment Platforms recorded the strongest positive effect ($\beta = 0.382$, $p < 0.05$), implying that increased utilization of mobile payment solutions was associated with the greatest improvement in MSME performance among the four dimensions examined.

Digital Market Platforms had the second-strongest effect ($\beta = 0.301$, $p < 0.05$), demonstrating that greater utilization of online market platforms contributed significantly to improved enterprise performance through enhanced market reach, customer engagement and business opportunities. This was followed by Digital Lending Platforms, which recorded a positive and significant coefficient of $\beta = 0.244$ ($p < 0.05$), suggesting that improved access to digital financing contributed positively to MSME performance.

Digital Financial Management Tools recorded the smallest coefficient, although the effect remained positive and statistically significant ($\beta = 0.118$, $p < 0.05$). This indicates that digital financial management applications also contributed to MSME performance, but their relative contribution was weaker than that of the other Fintech dimensions.

Overall, the relative influence of the Fintech dimensions followed the order: Mobile Payment Platforms ($\beta = 0.382$), Digital Market Platforms ($\beta = 0.301$), Digital Lending Platforms ($\beta = 0.244$), and Digital Financial Management Tools ($\beta = 0.118$). The findings therefore establish that all four Fintech dimensions positively contributed to MSME performance, with Mobile Payment Platforms emerging as the strongest predictor in Model 1.

Moderating Effects and Hierarchical Moderated Regression Models

The findings indicate that Fintech adoption alone does not fully explain MSME performance; the environment within which Fintech is utilized matters considerably. The increase in R^2 from 55.1% to 64.7% shows that adding the moderating factors generated an additional 9.6% explanatory power. This provides evidence that Digital Literacy, Trust and Security Concerns, and Internet Access enhance the ability of MSMEs to translate Fintech adoption into improved business performance.

The strongest reported interaction was Digital Market Platforms $\times$ Internet Access ($\beta = 0.201$, $p = 0.009$). This suggests that reliable internet connectivity strengthens the performance benefits MSMEs derive from digital market platforms. Stable internet access enables enterprises to engage customers online, expand market reach, increase sales opportunities and improve their competitive position.

Similarly, the positive interaction between Mobile Payment Platforms and Digital Literacy ($\beta = 0.187$, $p = 0.012$) indicates that MSMEs with stronger digital competencies are better able to utilize mobile payment systems effectively. Digital literacy therefore strengthens the contribution of mobile payments to transaction efficiency, sales, cost reduction and customer satisfaction.

The interaction between Mobile Payment Platforms and Trust and Security Concerns ($\beta = 0.166$, $p = 0.018$) implies that greater confidence in the security, privacy and reliability of Fintech platforms strengthens the benefits derived from mobile payments. Likewise, the significant Digital Lending Platforms $\times$ Digital Literacy interaction ($\beta = 0.154$, $p = 0.021$) suggests that digitally competent MSME owners are better positioned to access, evaluate and utilize digital credit effectively.

Overall, the results demonstrate that the positive contribution of Fintech adoption to MSME performance is stronger under favourable enabling conditions. Among the reported interaction effects, Internet Access produced the strongest moderating effect on Digital Market Platforms, while Digital Literacy strengthened both Mobile Payment and Digital Lending Platforms and Trust and Security strengthened the effectiveness of Mobile Payment Platforms. Since all reported interaction terms were significant ($p < 0.05$), the findings provide support for the study's proposition that these contextual factors play an important role in enhancing the performance benefits of Fintech adoption.

Table 12: Model Summary after Inclusion of Moderating Variables

Model	R Square	Change in R Square
1.	0.551	-
2.	0.647	0.096

Model 2 introduced the three moderating variables—Digital Literacy (DL), Trust and Security Concerns (TSC), and Internet Access (IA), into the relationship between Financial Technology adoption and MSME performance. The coefficient of determination increased from $R^2 = 0.551$ in Model 1 to $R^2 = 0.647$ in Model 2. This represents an increase of 9.6 percentage points ($\Delta R^2 = 0.096$) in the variance explained by the model. Thus, after incorporating the moderating factors, the model accounted for 64.7% of the variation in MSME performance, compared with 55.1% explained by Fintech adoption alone.

The improvement in explanatory power indicates that the contextual conditions under which MSMEs adopt and use Fintech are important in understanding their performance. In other words, the benefits derived from Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools and Digital Market Platforms depend partly on MSMEs' digital capabilities, confidence in the security of digital technologies and access to reliable internet connectivity.

Table 13: Moderating Effects of Digital Literacy, Trust and Security Concerns, and Internet Access on the Relationship between Financial Technology Adoption and MSME Performance

Interaction Term	Beta	Sig.
MPP × DL	0.187	0.012
DLP × DL	0.154	0.021
DMP × IA	0.201	0.009
MPP × TSC	0.166	0.018

The moderating effects were further examined through interaction terms. The results showed that the reported interaction coefficients were positive and statistically significant at $p < 0.05$. The interaction between Digital Market Platforms and Internet Access (DMP × IA) produced the strongest moderating effect ($\beta = 0.201$, $p = 0.009$). This was followed by Mobile Payment Platforms × Digital Literacy (MPP × DL) with $\beta = 0.187$, $p = 0.012$, Mobile Payment Platforms × Trust and Security Concerns (MPP × TSC) with $\beta = 0.166$, $p = 0.018$, and Digital Lending Platforms × Digital Literacy (DLP × DL) with $\beta = 0.154$, $p = 0.021$.

The overall **regression** models became:

Model 1: Direct Effects of Fintech Adoption

Model 1 examines the direct effects of Mobile Payment Platforms (MPP), Digital Lending Platforms (DLP), Digital Financial Management Tools (DFMT), and Digital Market Platforms (DMP) on MSME Performance.

$$Y = 0.841 + 0.382MPP + 0.244DLP + 0.118DFMT + 0.301DMP + \varepsilon$$

Model statistics: $R = 0.742$; $R^2 = 0.551$; Adjusted $R^2 = 0.542$; Standard Error of the Estimate = 0.421.

Model 2: Main Effects with Moderating Variables

Model 2 incorporates Digital Literacy (DL), Trust and Security Concerns (TSC), and Internet Access (IA) as additional explanatory variables before testing the interaction effects.

$$Y = \beta_0 + \beta_1MPP + \beta_2DLP + \beta_3DFMT + \beta_4DMP + \beta_5DL + \beta_6TSC + \beta_7IA + \varepsilon$$

Model statistics: $R^2 = 0.647$; $\Delta R^2 = 0.096$. The project does not report the individual numerical regression coefficients (β_0 – β_7) for Model 2; therefore, these values are not populated to avoid introducing unsupported estimates.

Model 3: Interaction Model

Model 3 introduces interaction terms to determine whether Digital Literacy, Trust and Security Concerns, and Internet Access moderate the relationship between the dimensions of Fintech adoption and MSME Performance.

$$Y = \text{Main Effects} + 0.187(MPP \times DL) + 0.154(DLP \times DL) + 0.166(MPP \times TSC) + 0.201(DMP \times IA) + \varepsilon$$

Variable Definitions

Y = MSME Performance

MPP = Mobile Payment Platforms

DLP = Digital Lending Platforms

DFMT = Digital Financial Management Tools

DMP = Digital Market Platforms

DL = Digital Literacy

TSC = Trust and Security Concerns

IA = Internet Access

β_0 = Constant/intercept

ε = Error term

Interpretation of Findings

The findings demonstrate that Financial Technology adoption plays a significant role in enhancing the performance of MSMEs in Nairobi County. The descriptive results showed generally favourable perceptions of Mobile Payment Platforms, Digital Lending Platforms, Digital Financial Management Tools, and Digital Market Platforms. This pattern was reinforced by the correlation analysis, where all four Fintech dimensions were positively associated with MSME performance. Mobile Payment Platforms recorded the strongest correlation ($r = 0.621$), followed by Digital Market Platforms ($r = 0.587$), Digital Lending Platforms ($r = 0.534$), and Digital Financial Management Tools ($r = 0.296$).

The regression results further established that Fintech adoption explained 55.1% of the variation in MSME performance ($R^2 = 0.551$). Mobile Payment Platforms had the strongest direct effect ($\beta = 0.382$), followed by Digital Market Platforms ($\beta = 0.301$), Digital Lending Platforms ($\beta = 0.244$), and Digital Financial Management Tools ($\beta = 0.118$). The inclusion of Digital Literacy, Trust and Security Concerns, and Internet Access

increased explanatory power to 64.7% ($R^2 = 0.647$; $\Delta R^2 = 0.096$). Overall, Fintech adoption enhances MSME performance, but its benefits are strengthened where businesses possess appropriate digital competencies, secure digital environments, and reliable internet connectivity.

Practical Implications

The findings have important implications for MSME owners, Fintech providers and policymakers. MSMEs should prioritize adoption of mobile payment and digital market platforms, since these demonstrated comparatively stronger relationships with enterprise performance. Businesses should also integrate digital lending strategically to support working capital, inventory acquisition and expansion while carefully managing financing costs and repayment obligations. Fintech providers should develop affordable, user-friendly and secure solutions appropriate to the capabilities of MSMEs. The significant role of Digital Literacy indicates the need for continuous training of MSME owners and employees in the effective utilization of financial technologies. Similarly, enhancing trust through stronger cybersecurity, privacy protection and transparent transaction systems can encourage utilization. Reliable and affordable internet connectivity is equally important for enabling MSMEs to maximize the performance benefits associated with Fintech adoption.

Theoretical Implications

The findings provide empirical support for the theoretical proposition that technology can constitute an important organizational resource for improving enterprise performance. The significant direct effects of the four Fintech dimensions demonstrate that technological resources can contribute to sales growth, profitability, efficiency, customer satisfaction and competitiveness when effectively deployed. More importantly, the moderation findings demonstrate that the possession of technology alone may not guarantee superior performance. Digital Literacy, Trust and Security Concerns, and Internet Access represent complementary conditions that influence an enterprise's ability to extract value from Fintech adoption. The increase in explained variance from 55.1% to 64.7% after incorporating the moderating factors reinforces this proposition. Thus, the findings enrich the study's theoretical framework by demonstrating that the Fintech–performance relationship depends both on technological adoption and the organizational and infrastructural conditions supporting effective technology utilization.

Limitations of the Descriptive Analysis

The descriptive analysis provides useful evidence on respondents' perceptions of Fintech adoption and MSME performance but has several limitations. First, descriptive statistics primarily summarize patterns in the data and therefore cannot establish causal relationships between Fintech adoption and enterprise performance. Second, the analysis relies largely on respondents' self-reported assessments of improvements in sales, profitability, efficiency, customer satisfaction and competitiveness, which may be affected by subjective judgement or response bias. Third, descriptive measures such as means, standard deviations, frequencies and percentages cannot adequately isolate the contribution of individual Fintech dimensions from other organizational and environmental factors affecting performance. Finally, the findings are based on MSMEs in Nairobi County, which limits their direct generalization to enterprises operating under different infrastructural, economic and technological conditions elsewhere. Consequently, inferential analysis was necessary to complement the descriptive findings.

CONCLUSIONS AND RECOMMENDATIONS

The study concludes that Financial Technology adoption significantly contributes to the performance of MSMEs in Nairobi County. The descriptive, correlation and regression results consistently demonstrate positive relationships between Fintech adoption and enterprise performance. Mobile Payment Platforms emerged as the most influential Fintech dimension, recording the strongest correlation with performance ($r = 0.621$) and the largest regression coefficient ($\beta = 0.382$). Digital Market Platforms were also particularly important ($r = 0.587$; $\beta = 0.301$), demonstrating the value of digital technologies in expanding markets, improving customer engagement and strengthening competitiveness. Digital Lending Platforms contributed positively through improved access to financing, while Digital Financial Management Tools had a comparatively smaller but statistically significant contribution.

The study further concludes that the performance benefits of Fintech depend partly on the environment within which these technologies are utilized. Incorporating Digital Literacy, Trust and Security Concerns, and Internet Access increased explained variance from $R^2 = 0.551$ to $R^2 = 0.647$, representing an additional 9.6%. Significant interaction effects further demonstrated that favourable moderating conditions strengthen the Fintech–performance relationship.

Accordingly, MSME owners should progressively integrate Fintech solutions into their core business processes, with particular emphasis on mobile payments and digital market platforms. They should invest in improving the digital competencies of owners and employees through training and continuous skills development. Digital lending should be used strategically to finance productive activities while avoiding excessive borrowing and unsustainable repayment obligations.

Fintech service providers should strengthen platform security, privacy protection, reliability and user-friendliness to increase trust among MSMEs. Policymakers and relevant institutions should support digital-literacy programmes targeting small businesses and promote affordable and reliable internet infrastructure. Particular attention should be directed towards reducing connectivity barriers that may prevent enterprises from fully exploiting digital financial and market platforms. Collectively, these measures would create an enabling environment in which MSMEs can translate Fintech adoption into sustained improvements in growth, efficiency, profitability and competitiveness.

Future Research Directions

Future studies should extend the research beyond Nairobi County to other counties and regions of Kenya to determine whether the observed Fintech–MSME performance relationships remain consistent across different economic and infrastructural contexts. Comparative studies involving urban and rural MSMEs would be particularly useful in examining differences in digital literacy, internet accessibility and Fintech adoption. Researchers could also employ longitudinal designs to establish how Fintech adoption influences MSME performance over time, since the current study provides evidence based on observations within a particular study period.

Future research should additionally incorporate more objective performance measures, including actual sales growth, profitability, operating costs and business survival, to complement respondents' perceptual assessments. Further studies could examine additional moderating or mediating variables such as firm size, owner characteristics, technological readiness, regulatory environment, financial capability and competitive intensity.

Given the comparatively weaker relationship between Digital Financial Management Tools and performance ($r = 0.296$), future studies should specifically investigate barriers affecting their adoption and utilization among MSMEs. Finally, qualitative or mixed-methods studies could provide deeper explanations of how MSMEs experience, adopt and derive value from different Fintech solutions.

ACKNOWLEDGMENTS

I would like to express my sincere gratitude to all individuals and institutions who contributed to the successful completion of this research study. I particularly wish to acknowledge the owners, managers, and employees of Micro, Small and Medium Enterprises (MSMEs) in Nairobi County who generously participated in the study by providing the information required and responding to the research questionnaires. Their cooperation, valuable insights, and willingness to share their experiences regarding Financial Technology adoption and MSME performance were instrumental in the successful completion of this study.

I also extend my appreciation to Taita Taveta University for providing the academic and institutional support necessary for undertaking the research.

Finally, I am grateful to all those who, directly or indirectly, contributed their time, knowledge, encouragement, and support toward the successful completion of this study.

ETHICAL DECLARATIONS

Funding Information: The authors received no external financial assistance or funding to undertake this research or prepare the manuscript.

Conflict of Interest: The authors declare that they have no competing interests or conflicts of interest that could have influenced the conduct, findings, or publication of this study.

Data Availability Statement: Data used to support the findings of this study are available from the corresponding author upon reasonable request, subject to the confidentiality and ethical requirements governing the research.

Research Ethics: Ethical clearance for the study was granted by the appropriate Ethics Review Committee of Taita Taveta University. Participation was entirely voluntary, and informed consent was obtained from all respondents before data collection. Appropriate measures were taken throughout the research process to safeguard participants' anonymity, privacy, and confidentiality.

RECOGNITIONS OF THE AUTHOR CONTRIBUTION

Samson Mwakitawa Mwakughu - Conceptualization, methodology, data collection, data analysis, writing.

Irene Njeri Esther - Supervision, refining methodology, reviewing and editing.

Anne Kemunto Nyabuti - Supervision, validation, editing and reviewing.

DATA AVAILABILITY

The full dataset generated and analyzed in this study is not publicly available due to ethical and confidentiality considerations. Nevertheless, anonymized data and associated supporting materials may be obtained from the corresponding author upon reasonable request, subject to compliance with the applicable ethical, privacy, and confidentiality requirements.

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