

International Journal of **Finance** (IJF)

**Digital Technologies and Financial Inclusion amongst Small and
Medium-Sized Enterprises in Nairobi County, Kenya**



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Journals

Digital Technologies and Financial Inclusion amongst Small and Medium-Sized Enterprises in Nairobi County, Kenya

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Abstract

Purpose: The study aimed at establishing the effects of digital technologies on financial inclusion amongst small and medium-sized enterprises in Nairobi County, Kenya. The study was specifically centered on establishing the effect of online banking services, digital lending platforms, agency banking platforms and mobile money services on financial inclusion amongst small and medium-sized enterprises in Nairobi County, Kenya.

Methodology: A descriptive research design was employed and the target population comprised of 21100 SMEs operating in Nairobi City County Central Business District. Fishers sampling formula was utilized in deriving a sample size of 96 SMEs. Stratified sampling technique was used in distributing the sample size across the SMEs' categories. The units of observation comprised of owners or managers of the businesses. The instrument for collecting data were closed-ended questionnaires structured in a five-point Likert scale. The gathered data was analysed using both descriptive and inferential statistics.

Findings: The study established that online banking services, digital lending platforms, agency banking platforms and mobile money services positively and significantly correlates with financial inclusion amongst SMEs. Consequently, the study established a positive and significant effect of digital technologies on financial inclusion. The results implied that increasing any of the aspects of the digital technologies with one unit would result to an increase in the levels of financial in SMEs with respective beta values. Agency Banking Platforms however had a positive but insignificant effect on financial inclusion.

Unique Contribution of Theory, Practice and Policy: The study recommended the SMEs to leverage on the digital technologies in their business operations since the technologies contributes significantly to financial inclusion and business growth. This study integrates multiple dimensions of digital technologies such as online banking, digital lending, agency banking, and mobile money into a unified framework to assess their collective influence on financial inclusion among SMEs in an urban developing-country context. The findings contribute to theory by extending financial innovation and intermediation perspectives to SME settings. This is in addition to offering practical insights for policymakers and managers on designing digital and regulatory strategies that enhance SME financial accessibility and inclusion.

Key Words: *Online Banking Services, Digital Lending Platforms, Agency Banking Platforms, Mobile Money Services, Financial Inclusion*

Background of the Study

The rapidly evolving and competitive environment in which small and medium-sized enterprises (SMEs) operate is characterized by fast-paced technological change, limited access to formal finance, and dynamic customer needs (Bett & Anene, 2023). SMEs play a crucial role in Kenya's socioeconomic development through job creation, income generation, and poverty reduction. However, many continue to face operational challenges, particularly in accessing affordable and reliable financial services necessary for growth and sustainability. According to Falaiye, Adijat and Feranmi (2024), digital technologies have become key enablers of financial inclusion by allowing SMEs to access credit, manage transactions efficiently, and enhance overall business performance. Integrating digital tools into SME operations promotes financial transparency, scalability, and competitiveness.

Digital technologies are electronic instruments, devices, systems, and resources that produce, store, or process data (Ciarli et al. 2021). They enable information to be transformed into digital formats, making communication, data sharing, and service delivery more efficient and accessible. Built on computing and telecommunications infrastructure, these technologies facilitate real-time interaction, automation, and data-driven decision-making across sectors. They have become central to socio-economic development, particularly in the financial and commercial spheres, by connecting underserved business groups with formal financial institutions. Through innovative platforms, digital technologies have enhanced SMEs' access to financial services that were previously limited by inadequate infrastructure, lack of credit history, or geographical barriers (Wanof, 2023). One significant form of digital technology supporting financial inclusion is online banking. According to Melubo and Musau (2020), online banking involves internet-based platforms provided by financial institutions that allow SMEs to conduct financial transactions remotely via computers or mobile devices. These platforms enable businesses to check balances, transfer funds, pay bills, and manage accounts without visiting physical branches (Ene, Abba, & Fatokun, 2019). This convenience saves time and promotes transparency and effective financial management for SMEs.

Another important innovation is digital lending platforms, which use algorithms and alternative data sources to assess creditworthiness and provide loans to SMEs. Wathome (2020) describes these platforms as technology-driven systems that allow businesses to access credit online without relying on traditional banking infrastructure. By using mobile usage, transaction histories, and social media data, digital lenders offer quick, unsecured loans to SMEs, enabling them to meet operational needs and expand their activities (Nkatha, 2022). These platforms have become crucial in extending credit to enterprises excluded from formal financial systems. Agency banking also enhances financial inclusion by allowing third-party agents to provide banking services on behalf of established financial institutions. Agents, often based in local shops or kiosks, facilitate transactions such as deposits, withdrawals, and bill payments (Lotto, 2016). This model bridges the gap between formal banks and informal enterprises while reducing the costs of setting up

physical branches. As a result, agency banking improves accessibility and helps SMEs manage cash flows more efficiently. Mobile money services have transformed financial interactions among SMEs by enabling easy transfer, receipt, and storage of money through mobile phones. Nzyoka (2020) defines these services as digital financial systems that allow individuals and businesses to perform financial transactions via mobile devices. Mobile money has become integral to Kenya's financial landscape, supporting SMEs in conducting cashless transactions, paying suppliers, receiving payments, saving, and accessing credit facilities (Nyimbiri, 2021).

Statement of the Problem

Small and Medium-sized Enterprises (SMEs) play a vital role in Kenya's economy through job creation, innovation, and income generation. However, in Nairobi County, many SMEs continue to face persistent financial exclusion characterized by limited access to affordable credit, inadequate savings and insurance options, and barriers to formal financial systems. These challenges arise from stringent collateral requirements, costly banking procedures, and low levels of financial literacy (Wonglimpiyarat, 2015), which collectively constrain their growth and weaken their contribution to socio-economic development. Although traditional financial institutions have attempted to address these challenges, many SMEs remain underserved. The emergence of digital technologies such as mobile banking, fintech platforms, mobile money services, and digital credit scoring offers promising alternatives for bridging the financial access gap. These technologies have the potential to simplify transactions, lower service costs, and enhance access to tailored financial products (Hove & Dubus, 2019). However, the extent of their adoption by SMEs in Nairobi County and their actual effectiveness in meeting SME financial needs remain unclear due to limited empirical data, inconsistent adoption patterns, and weak research focus on SME-centered digital finance outcomes. Existing studies reveal notable research gaps. Shen, Hueng, and Hu (2019) found that digital technologies enhanced financial inclusion in China, but their findings are contextually limited for Kenya. Iwedi (2023) examined digital banking and financial inclusion in Nigeria but focused narrowly on one aspect of digital technology, leaving a conceptual gap regarding the broader range of digital tools. In Kenya, Majau and Ragui (2017) explored technological innovations and SME performance but did not address financial inclusion, indicating a thematic gap in local scholarship. Nairobi County provides a unique context for investigating these gaps due to its high concentration of SMEs operating in both formal and informal sectors. Yet, there is insufficient empirical evidence on how these enterprises are leveraging digital technologies to overcome financial exclusion. This study, therefore, sought to examine the influence of digital technologies on financial inclusion among SMEs in Nairobi County, Kenya.

Objectives of the Study

- i. To establish the effect of online banking services on financial inclusion amongst small and medium-sized enterprises in Nairobi County, Kenya

- ii. To find out the effect of digital lending platforms on financial inclusion amongst small and medium-sized enterprises in Nairobi County, Kenya
- iii. To examine the effect of agency banking platforms on financial inclusion amongst small and medium-sized enterprises in Nairobi County, Kenya
- iv. To find out the effect of mobile money services on financial inclusion amongst small and medium-sized enterprises in Nairobi County, Kenya

Theoretical Review

Diffusion Innovation Theory

Everett M. Rogers developed the Diffusion of Innovations Theory in 1962. It is a fundamental framework that describes how new concepts, methods, or technology gradually spread throughout a society or between societies. Diffusion, according to Abuhassna and Zaid (2023), is the process by which an innovation gradually spreads among the members of an ecosystem of society via certain channels. According to the theory, there are five different types of adopters, each with a different level of propensity to accept new techniques or technologies. It also outlines important elements that affect an innovation's adoption, such as its relative advantage, compatibility with current norms and values, trialability, complexity, and observability. The theory contributes to understanding the integration of online banking services among SMEs, where online banking represents the innovation and SMEs constitute the social system within which diffusion occurs. According to the theory, the adoption of online banking services by SMEs depends on how these businesses perceive the advantages of such services—such as convenience, cost efficiency, and improved financial management—relative to traditional banking methods (Khattab, Alhadid & Alnwaigah, 2015). If online banking is seen as compatible with SME operations, easy to use, and its benefits observable and testable, adoption is likely to increase. Hence, DOI Theory provides the main explanatory lens for examining how SMEs adopt digital technologies to enhance financial inclusion. While the Diffusion of Innovation Theory explains how and why SMEs adopt digital financial technologies, it does not fully address the financial constraints that might hinder adoption despite positive perceptions of innovation. The Credit Rationing Theory complements DOI by examining the supply-side limitations particularly access to credit that affect the capacity of SMEs to adopt or benefit from such technologies.

Credit Rationing Theory

The theory was proposed in 1981 by Stiglitz and Weiss and forms a foundational concept in financial economics field that explains imperfections in credit markets. The theory states that credit rationing happens when lenders restrict the quantity of credit accessible to borrowers due to asymmetric knowledge, the possibility of moral hazard and adverse selection, rather than interest rate limits or regulatory constraints (Stiglitz & Weiss, 1981). According to the hypothesis, lenders may still refuse loans to specific groups of borrowers who are thought to be dangerous, even if they are okay with paying higher interest rates. The theory argues that in the presence of imperfect information, higher interest rates do not necessarily compensate lenders for increased risk. Instead,

higher rates may attract riskier borrowers or incentivize existing borrowers to undertake riskier projects in order to meet their debt obligations (Stiglitz & Weiss, 1987). As a result, financial institutions might prefer to ration credit by limiting the amount disbursed or rejecting applications altogether, rather than adjusting interest rates upwards. This behavior creates barriers to accessing formal financial services, especially for SMEs, which often lack sufficient credit history, collateral, or formal documentation. In the study, the theory provides a strong theoretical foundation for examining the role of digital lending platforms. Traditional financial institutions in Kenya have historically viewed SMEs as high-risk clients, leading to widespread credit rationing. However, digital lending platforms are emerging as alternative avenues that leverage technology to assess creditworthiness in innovative ways (Schreft & Villamil, 1992). The platforms have the potential to mitigate the effects of traditional credit rationing by reducing information asymmetry and offering more inclusive lending criteria. By addressing the root causes of credit rationing, digital platforms enhance access to credit, thereby fostering greater financial inclusion for SMEs.

Financial Intermediation Theory

Gurley and Shaw introduced the concept in 1960, and it offers a fundamental framework for comprehending how financial intermediaries help close the disparity amongst those who save and those who borrow in an economy. According to the theory, financial intermediaries exist to overcome various market imperfections that hinder the efficient allocation of capital (Allen & Santomero, 1997). The imperfections include information asymmetry, transaction costs, and the indivisibility of certain investments. Intermediaries help enhance liquidity, manage risks, and reduce the costs of financial transactions by pooling funds from savers and allocating them to productive investments. A key proposition of the theory as noted by Kithandi (2025) is that intermediary's act as a crucial conduit for mobilizing savings and directing them towards sectors that require capital, especially SMEs that often face barriers in accessing traditional banking services. This intermediation process is particularly vital in developing economies, where formal financial markets are either underdeveloped or inaccessible to large segments of the population and businesses. The relevance of the Financial Intermediation Theory to the study objective lies in the theory's emphasis on the pivotal role of intermediaries in expanding access to finance. Agency banking is a contemporary type of financial intermediation that enables banks to expand their services via independent intermediaries like retail stores and mobile money wallets. It leverages digital technologies to bring banking services closer to underserved populations, including SMEs in remote or low-income urban areas (Gelle, Mwambia & Kimathi, 2023). Through agency banking, financial institutions can lower the cost of service delivery and increase outreach without the need for physical bank branches. This aligns directly with the core idea of financial intermediation by overcoming barriers of distance, cost, and lack of formal documentation. Agency banking platforms promote financial inclusion and empower SMEs to participate more actively in economic development by facilitating deposits, withdrawals, credit access, and other banking services at the grassroots level.

Theory of Financial Innovation

The theory as proposed by Silber in 1975, seeks to explain the emergence, diffusion, and impact of new financial instruments, institutions, and technologies within the broader economic system. According to Silber, financial innovations arise primarily as responses to constraints in existing financial markets, whether regulatory, institutional, or operational (Anderloni, Llewellyn & Schmidt, 2009). The innovations are often introduced to improve efficiency, reduce transaction costs, enhance liquidity, or facilitate access to financial services that were previously limited or inaccessible. According to the notion, financial innovation is essentially an ongoing process that is motivated by the desire to satisfy unmet financial demands and adjust to shifting market conditions. Digital technologies such as mobile money services represent a significant financial innovation that has completely changed how financial transactions are carried out, particularly in areas with inadequate or ineffective traditional banking infrastructure. Many SMEs are among the formerly unbanked or underbanked people that the platforms have helped to connect with the formal financial sector (Cherotich, Sang & Shisia, 2015). Mobile money services align with Silber's argument that financial innovations emerge to overcome market inefficiencies by reducing the barriers to accessing financial services. For SMEs, mobile money enables easier transactions, savings, credit access, and improved cash flow management, which are critical components of financial inclusion. Therefore, by portraying the use of mobile money as a revolutionary instrument that improves financial inclusion and accessibility and eventually aids in the expansion and sustainability of SMEs, the theory supports the goal of the study.

Conceptual Framework

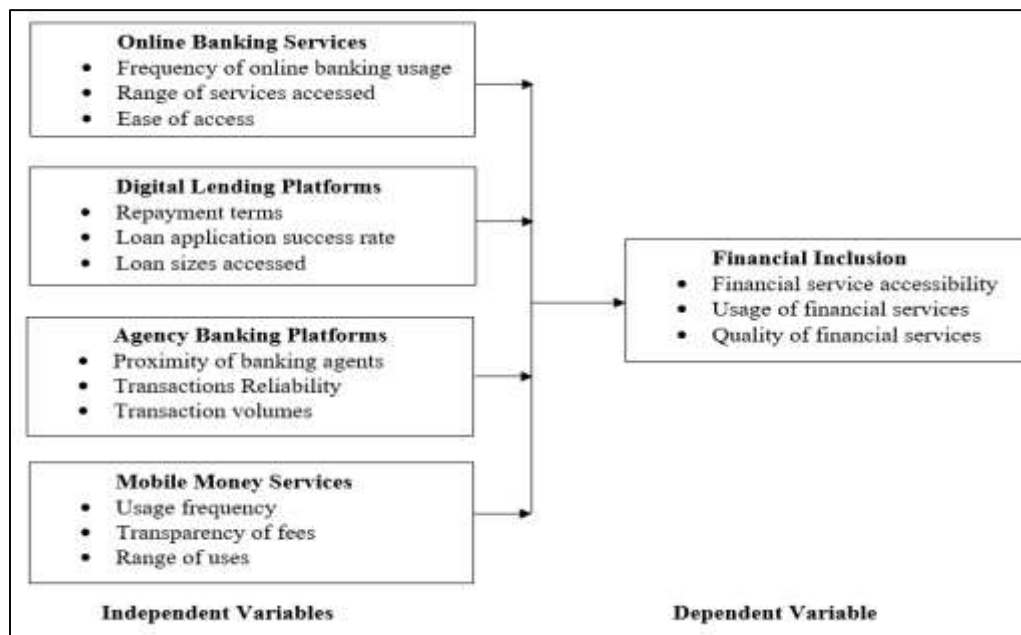


FIGURE 1: Conceptual Framework

Research Methodology

The study adopted a descriptive-correlational research design. A total of 21,100 SMEs were targeted as per the Nairobi City County Directorate of Trade Licensing (2024). The units of observation comprised of owners or managers of SMEs in each of the category. The study utilized a stratified sampling approach, where eight clusters of SME categories were used to classify the businesses in this study. Fishers sampling formula was utilized to derive a sample of 96. The study utilized primary data collected through a structured questionnaire. The study utilized both descriptive and inferential statistics to analyzed the data. The statistics were generated through SPSS. Tables and figures were used to display the results of the analysis. To assess the nature of relationship between the independent and dependent variables, the study adopted a multivariate model outlined below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where; Y = Financial Inclusion, β_0 = Regression constant or intercept, β_1 , β_2 , β_3 and β_4 are the independent variables unknown coefficients, X_1 = Online Banking Services, X_2 = Digital Lending Platforms, X_3 = Agency Banking Platforms, X_4 = Mobile Money Services and ϵ = Error term

Descriptive Statistics

Online Banking Services

Table 1 presents the descriptive statistics on online banking services. The findings reveal a generally moderate engagement with online banking among SMEs in Nairobi County. Respondents reported average levels of agreement with statements such as frequently using online banking services for business transactions (mean = 3.329, std. dev = 1.095), accessing their business bank account online at least once a week (mean = 3.200, std. dev = 1.213), and using online banking to manage their business finances (mean = 3.012, std. dev = 1.096). These results suggest that while SMEs recognize the potential value of online banking, its adoption remains partial, indicating that many businesses are yet to fully integrate such platforms into their routine financial operations. Similarly, moderate responses were recorded for statements relating to the adequacy of online banking services provided by banks (mean = 3.012, std. dev = 1.096) and the use of online banking to make payments to suppliers and employees (mean = 3.259, std. dev = 1.187). This pattern implies that SMEs might still rely on traditional banking or cash-based systems for certain transactions, possibly due to concerns about transaction security, digital literacy gaps, or infrastructural limitations. The neutrality in responses regarding ease of access through mobile devices or computers (mean = 2.965, std. dev = 1.149) and platform user-friendliness (mean = 3.059, std. dev = 1.051) further reflects a cautious approach toward online financial management tools. The overall mean score of 3.129 (std. dev = 1.089) indicates that online banking adoption among SMEs is moderate rather than widespread. This finding aligns with the Technology Acceptance Model, which posits that perceived ease of use and perceived usefulness influence technology adoption (Davis, 1989). The neutrality observed in this study may

reflect SMEs' ambivalence regarding the relative advantages of online banking or a lack of confidence in the system's reliability. Furthermore, the results are consistent with Gakuru et al. (2025), who found that while online banking enhances accessibility and affordability of financial services, its uptake depends on users' trust and familiarity with digital platforms.

TABLE 1 Descriptive Statistics on Online Banking Services

Online Banking Services	N	Mean	Std.Dev
I frequently use online banking services for my business transactions.	85	3.329	1.095
I access my business bank account online at least once a week	85	3.200	1.213
Online banking helps me manage my business finances regularly	85	3.012	1.096
My bank provides all the necessary services for my business through online banking	85	3.012	1.096
I use online banking to make payments to suppliers and employees	85	3.259	1.187
It is easy for me to access online banking services using my mobile device or computer	85	2.965	1.149
I find the online banking platform user-friendly and simple to navigate	85	3.059	1.051
I rarely encounter technical issues when using online banking services	85	3.200	0.828
Overall Mean Score	85	3.129	1.089

Digital Lending Platforms

Table 2 presents the descriptive results on digital lending platforms. The findings reveal that respondents moderately agreed that they could easily access multiple types of business loans via online banking platforms (mean = 3.635, SD = 1.243). This suggests that while digital lending is available to many SMEs, access may still be uneven, possibly reflecting differences in technological readiness or awareness across enterprises. However, there was moderate or uncertain perception regarding the flexibility and manageability of repayment terms offered by digital lending platforms (mean = 3.118, SD = 1.257), as well as the affordability of interest rates on such loans (mean = 3.047, SD = 1.214). This uncertainty implies that although digital credit products are accessible, SMEs may perceive the associated costs and repayment structures as less favorable or inconsistent with their cash flow cycles. Such perceptions can limit full adoption and utilization of digital credit facilities. Similarly, the respondents expressed modest confidence regarding the success rate of loan applications through digital platforms (mean = 2.906, SD = 1.109) and fairness or transparency of loan approval criteria (mean = 2.812, SD = 1.210). These findings suggest that SMEs may still distrust the algorithms or decision-making mechanisms used by digital lenders, possibly due to perceived opacity in credit scoring or limited human interaction in the loan process.

The mean scores also showed moderate agreement that loan sizes accessed through digital lending platforms meet their financial needs (mean = 3.176, SD = 1.265), and that online banking services have improved their ability to access credit facilities (mean = 2.976, SD = 0.831). These results collectively produced an overall mean score of 3.096 (SD = 1.161), indicating that SMEs had mixed or cautious attitudes toward digital lending platforms. From a theoretical perspective, these findings can be interpreted using the Technology Acceptance Model (TAM), which posits that users' behavioral intentions depend on perceived usefulness and ease of use (Davis, 1989). The

neutral responses in this study imply that SMEs may not yet fully perceive digital lending platforms as significantly useful or reliable in meeting their credit needs, hence exhibiting only partial acceptance. Similarly, the Diffusion of Innovation Theory (Rogers, 2003) suggests that adoption proceeds in stages; the neutrality observed here may indicate that most SMEs are still in the early adoption or evaluation stage, testing the viability of digital lending services before committing fully. These findings are consistent with Nkatha (2022), who found that while digital lending platforms have improved credit access for SMEs, challenges such as high interest rates, small loan limits, and lack of transparency hinder optimal utilization. Omondi and Oloko (2021) also observed that trust and perceived risk significantly influence SMEs' willingness to use fintech lending products in Kenya.

TABLE 2 Descriptive Statistics on Digital Lending Platforms

Digital Lending Platforms	N	Mean	Std.Dev
The repayment terms offered by digital lending platforms are flexible and manageable for my business.	85	3.118	1.257
The interest rates associated with repayment on digital loans are affordable.	85	3.047	1.214
My business has experienced a high success rate when applying for loans through digital platforms.	85	2.906	1.109
The criteria for loan approval on digital lending platforms are fair and transparent.	85	2.812	1.210
The loan sizes accessed through digital lending platforms meet the financial needs of my business.	85	3.176	1.265
I can easily access multiple types of business loans via online banking platforms.	85	3.635	1.243
Online banking services have improved my business's ability to access credit facilities.	85	2.976	0.831
Overall Mean Score	85	3.096	1.161

Agency Banking

The descriptive results on agency banking presented in Table 3 revealed moderate levels of agreement among respondents regarding the role of agency banking in promoting financial inclusion among SMEs in Nairobi County. Respondents moderately agreed that banking agents were located close to their business premises (mean = 3.529, SD = 1.402) and were capable of handling high volumes of transactions without delays (mean = 3.541, SD = 1.476). This implies that agency banking has enhanced convenience and accessibility to some extent by bringing financial services closer to business operators. However, the neutral ratings on statements such as the proximity of banking agents improving access to financial services (mean = 3.459, SD = 1.436) and the reliability of agents in conducting transactions (mean = 3.341, SD = 1.436) indicate that while agents are available, SMEs may still experience uncertainties regarding the quality, reliability, or consistency of services offered. Furthermore, neutrality on whether transactions through banking agents were successful and error-free (mean = 3.306, SD = 1.480) suggests that SMEs may have encountered occasional operational inefficiencies or delays, which could reduce

their confidence in fully adopting agent-based services. The relatively lower mean on the frequent use of agents for large cash transactions (mean = 3.188, SD = 1.460) further implies a cautious approach among SMEs, possibly due to perceived security risks or transaction limits. Similarly, neutrality regarding the sufficiency of services offered by banking agents (mean = 3.376, SD = 1.154) points to a perception that agency banking may not yet fully meet the diverse financial needs of SMEs.

Overall, the composite mean score of 3.392 (SD = 1.406) reflects moderate engagement with agency banking services. This suggests that although agency banking has expanded access points for financial services, its adoption among SMEs in Nairobi County remains limited or tentative. These findings are consistent with Kithinji (2017), who observed that while agency banking increases physical accessibility to banking services, full utilization depends on factors such as service reliability, transaction capacity, and trust in agents. Similarly, Mago and Chitokwindo (2014) noted that SMEs' willingness to use agency banking depends on perceptions of safety, transaction costs, and agent competence. The findings align with the Diffusion of Innovation Theory (Rogers, 2003), which posits that innovation adoption is influenced by users' perceptions of relative advantage, compatibility, and reliability. The neutral responses suggest that SMEs may still be in the early stages of adoption, characterized by limited trial and evaluation of agency banking's benefits relative to traditional banking. The results also resonate with the Financial Intermediation Theory, which emphasizes the importance of efficient financial service channels in bridging gaps between savers and borrowers. The neutrality observed implies that agency banking has not yet fully achieved its intermediation role among SMEs due to lingering concerns about efficiency and reliability.

TABLE 3 Descriptive Statistics on Agency Banking

Agency Banking	N	Mean	Std.Dev
There are banking agents located close to my business premises.	85	3.529	1.402
The proximity of banking agents has improved my access to financial services.	85	3.459	1.436
I can rely on banking agents to carry out financial transactions without issues.	85	3.341	1.436
Transactions done through banking agents are usually successful and error-free.	85	3.306	1.480
Banking agents are able to handle high volumes of transactions without delays.	85	3.541	1.476
My business frequently uses banking agents to carry out large cash transactions.	85	3.188	1.460
The services offered by banking agents are sufficient for my business needs.	85	3.376	1.154
Overall Mean Score	85	3.392	1.406

Mobile Money Services

The descriptive results in Table 4 indicate moderate engagement of SMEs with mobile money services. Respondents neither agreed nor disagreed with most statements, suggesting uncertainty or limited intensity in the adoption of mobile money platforms for business operations. Specifically, while the respondents reported occasional use of mobile money services (mean = 2.800, SD = 1.252) and indicated that mobile money was not yet the dominant mode of transaction in their businesses (mean = 2.506, SD = 1.098), the neutral mean scores imply that these services are used selectively rather than as a central financial tool. Similarly, the neutral response regarding increased usage over the past year (mean = 2.529, SD = 1.171) points to slow growth in adoption despite the growing national trend toward digital financial solutions. Regarding service transparency and affordability, respondents expressed uncertainty about the clarity of transaction fees (mean = 2.459, SD = 1.287) and fairness of charges (mean = 2.118, SD = 0.762). This indicates that many SMEs may not fully understand or trust the pricing structures of mobile money providers, which could hinder their confidence in digital transactions. The slightly higher mean on the use of mobile money for savings (mean = 3.165, SD = 1.122) suggests that a portion of SMEs view mobile platforms as convenient for short-term liquidity management, although they remain less utilized for broader business financial operations such as supplier payments (mean = 2.541, SD = 0.920).

Overall, the composite mean of 2.617 (SD = 1.089) suggests moderate use and understanding of mobile money services among SMEs in Nairobi County. This finding reflects a transitional phase in financial inclusion, where awareness of mobile money exists, but full integration into business practices remains limited. These results align with Nzyoka (2020), who observed that mobile banking services enhance financial inclusion among SMEs, but their effectiveness depends on user confidence, cost transparency, and system reliability. The findings are consistent with the Technology Acceptance Model (TAM), which posits that perceived usefulness and perceived ease of use determine users' adoption of new technologies (Davis, 1989). The observed neutrality may imply that SMEs perceive mobile money as somewhat useful but still have reservations about its cost-effectiveness and reliability.

TABLE 4 Descriptive Statistics on Mobile Money Services

Mobile Money Services	N	Mean	Std.Dev
My business uses mobile money services on a daily basis.	85	2.800	1.252
Mobile money is the most frequent mode of transaction for my business.	85	2.506	1.098
The frequency of mobile money usage in my business has increased over the past year.	85	2.529	1.171
I clearly understand the transaction fees associated with using mobile money services.	85	2.459	1.287
Mobile money service providers are transparent about their charges.	85	2.847	1.358
The fees charged for mobile money transactions are fair and predictable.	85	2.118	0.762
I use mobile money services to pay suppliers and business expenses.	85	2.541	0.920
I use mobile money for saving purposes	85	3.165	1.122
Mobile money services support a wide range of financial needs for my business.	85	2.588	0.835
Overall Mean Score	85	2.617	1.089

Financial Inclusion

The descriptive results on financial inclusion presented in Table 5 revealed that most SMEs in Nairobi County had moderately high levels of financial inclusion facilitated by digital technologies. Respondents largely agreed that they could easily access financial services near their business location (mean = 4.047, std. dev = 1.090), suggesting that financial institutions have established accessible channels, possibly through agency banking and mobile-based financial service points. Respondents also agreed that they had access to digital platforms through which they could interact with financial service providers (mean = 3.824, std. dev = 1.236). This implies that digital communication tools are increasingly being utilized by SMEs to facilitate financial interactions. However, the moderate mean score indicates that some SMEs still face challenges in adopting these technologies, possibly due to digital literacy or infrastructure limitations. The results further showed that the requirements for accessing financial services were viewed as affordable and achievable for SMEs (mean = 3.871, std. dev = 1.307). This indicates an improving inclusivity of financial systems. Respondents agreed that financial institutions offer services tailored to the needs of SMEs (mean = 3.824, std. dev = 1.390), implying that some institutions are beginning to recognize the unique credit and transaction needs of small businesses. Nevertheless, the moderate rating suggests that customization of financial products remains partial, reflecting a gap between SME needs and existing financial solutions. Similarly, the respondents agreed that their businesses regularly use digital financial services for transactions (mean = 3.906, std. dev = 1.201) and that they used digital platforms to manage their business finances (mean = 3.976, std. dev = 1.144). This reflects a growing reliance on digital tools for payments, accounting, and record management. The relatively high means underscore the increasing normalization of digital finance in day-to-day SME operations.

Moreover, respondents agreed that the financial services they use are reliable and meet their business needs effectively (mean = 3.647, std. dev = 1.334) and that the fees and charges were

reasonable and transparent (mean = 3.894, std. dev = 1.102). This indicates that while most SMEs are satisfied with service reliability and cost transparency, some uncertainty persists, possibly reflecting inconsistent service quality or hidden costs. Finally, the finding that digital financial services are user-friendly and efficient (mean = 3.906, std. dev = 0.881) suggests growing confidence among SMEs in navigating digital interfaces. However, the standard deviation implies variations in user experience, likely due to differences in digital literacy or platform design across providers. Overall, the results yielded an aggregate mean of 3.877 and a standard deviation of 1.187, indicating moderate to high financial inclusion among SMEs in Nairobi County. This aligns with Wanof (2023), who asserts that digital technologies are transformative in bridging gaps between traditional financial systems and underserved business segments. From a theoretical perspective, these findings are consistent with the Diffusion of Innovation Theory (Rogers, 2003), which explains that adoption of financial innovations among SMEs progresses through gradual acceptance as firms perceive relative advantages, compatibility, and ease of use.

TABLE 5 Descriptive Statistics on Financial Inclusion

Financial Inclusion	N	Mean	Std.Dev
I can easily access financial services near my business location	85	4.047	1.090
I have access to digital platforms to interact with financial service providers	85	3.824	1.236
The requirements for accessing financial services are affordable and achievable for my business	85	3.871	1.307
Financial institutions offer services that are tailored to the needs of SMEs	85	3.824	1.390
My business regularly uses digital financial services for transactions	85	3.906	1.201
I use digital platforms to manage my business finances	85	3.976	1.144
The financial services I use are reliable and meet my business needs effectively	85	3.647	1.334
The fees and charges for financial services are reasonable and transparent	85	3.894	1.102
Digital financial services are user-friendly and efficient	85	3.906	0.881
Overall Mean Score	85	3.877	1.187

Inferential Statistics

Correlation Analysis

Table 6 presents the correlation analysis results. The findings indicate a moderate and significant positive correlation between online banking services and financial inclusion among Nairobi County's SMEs, as shown by a Pearson correlation value of 0.392 and a significance level of 0.000. This means that as online banking services improve, SMEs tend to experience higher levels of financial inclusion. The results imply that better access to internet-based banking platforms enables SMEs to conveniently conduct transactions, make payments, and manage accounts remotely, which enhances their participation in the formal financial system. According to Melubo and Musau (2020), online banking provides SMEs with the ability to perform various transactions remotely

via the internet, improving convenience and access. The results further show a moderate and significant positive correlation between digital lending platforms and financial inclusion, with a Pearson correlation value of 0.377 and significance value of 0.000. This implies that improvements in digital lending platforms are associated with higher financial inclusion levels among SMEs. In practical terms, as digital lending services become more accessible and efficient, SMEs are more likely to obtain financing for their operations, growth, or investment activities. Nkatha (2022) observed that digital lending platforms have become instrumental in providing quick, unsecured loans to SMEs, enabling them to meet operational costs or invest in new opportunities.

The results also indicate a weak but significant positive correlation between agency banking and financial inclusion, with a Pearson correlation value of 0.276 and a significance value of 0.011. This means that as agency banking services improve, there is a corresponding, though less pronounced, increase in financial inclusion levels among SMEs. Practically, this suggests that when banks expand their agency networks, SMEs can access financial services more easily, especially in areas with limited physical bank branches. Kithinji (2017) noted that agency banking enhances financial inclusion by lowering physical barriers and offering services in accessible locations and local languages. The correlation results reveal a moderate and significant positive correlation between mobile money services and financial inclusion, indicated by a Pearson correlation value of 0.416 and a significance value of 0.000. This means that as mobile money services improve or expand, financial inclusion among SMEs also tends to increase. In practical terms, this suggests that mobile money platforms facilitate easier access to payments, transfers, and credit facilities for SMEs. According to Nyimbiri (2021), increased access to mobile money services substantially improves access to financial services, thus promoting financial inclusion.

TABLE 6 Correlation Results

		Online Banking Services	Digital Lending Platforms	Agency Banking Platforms	Mobile Money Services	Financial Inclusion
Online Banking Services	Pearson Correlation Sig. (2-tailed)	1				
Digital Lending Platforms	Pearson Correlation Sig. (2-tailed)	.121 .270	1			
Agency Banking Platforms	Pearson Correlation Sig. (2-tailed)	.114 .299	.237 .029	1		
Mobile Money Services	Pearson Correlation Sig. (2-tailed)	.388 .000	.020 .856	.179 .101	1	
Financial Inclusion	Pearson Correlation Sig. (2-tailed)	.392 .000	.377 .000	.276 .011	.416 .000	1
	N	85	85	85	85	85

Regression Analysis

The study applied a multiple regression model to examine the relationship between the independent variables and the dependent variable. A 0.05 significance level was adopted for the analysis. The regression output included three key components: the model summary, analysis of variance (ANOVA), and model coefficients. The model summary helped determine the strength of the relationship between digital technologies (online banking services, digital lending platforms, agency banking platforms, and mobile money services) and financial inclusion among SMEs in Nairobi County. The model summary further indicated how much of the variation in the dependent variable could be explained by the independent variables. The R-value was 0.604, as indicated in Table 7, suggesting a moderate connection between digital technology and financial inclusion. The four digital technology variables incorporated into the study were shown to account for 36.5% of the variability in financial inclusion among SMEs in Nairobi County, according to the R-squared value of 0.365.

TABLE 7 Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.604 ^a	.365	.333	.715
a. Predictors: (Constant), Online Banking Services, Digital Lending Platforms, Agency Banking Platforms and Mobile Money Services			

The study employed Analysis of Variance (ANOVA) to determine whether the model establishing the relationship between the dependent and independent variables was statistically meaningful. The significance level attained was 0.0111, which falls below the 0.05 cutoff, as shown in Table 8. This suggests that the model was a good match for the study because it was statistically significant.

TABLE 8 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.506	4	5.877	11.490	.0111 ^b
	Residual	40.915	80	.511		
	Total	64.421	84			
a. Financial Inclusion						
b. Predictors: (Constant), Online Banking Services, Digital Lending Platforms, Agency Banking Platforms and Mobile Money Services						

Regression coefficient results were used in the study to assess how much changes in the independent variable affect variations in the dependent variable. Online banking services have a positive and significant impact on financial inclusion among SMEs in Nairobi County, Kenya, according to the results shown in table 9. A significant value of 0.024 and a beta value of 0.285 demonstrate this. The findings suggest that the degree of financial inclusion among SMEs in

Nairobi County increases by 0.285 units when features of online banking platforms are increased by one unit. The results are consistent with Gakuru et al. (2025) findings that established that by lowering the cost and increasing the accessibility of financial services, online banking promotes financial inclusion. The results additionally shows that digital lending platforms positively and significantly affects financial inclusion amongst SMEs in Nairobi County, Kenya. A significant value of 0.001 and a beta value of 0.465 demonstrate this. The findings suggest that the degree of financial inclusion among SMEs in Nairobi County increases by 0.465 units when features of digital lending platforms are increased by one unit. The results concurs with Nkatha (2022) who established that digital lending platforms have become instrumental in offering quick, unsecured loans to SMEs thus enabling them to meet operational costs, expand, or invest in new opportunities.

The results further established existence of a positive and insignificant effects of agency banking platforms on financial inclusion amongst SMEs in Nairobi County, Kenya. This is depicted by a beta value of 0.098 and insignificant value of 0.196. The results bear the implications that increasing aspects of agency banking platforms with one unit results to 0.098 units increase in the levels of financial inclusion amongst SMEs in Nairobi County. The results tallies with the findings from Lotto (2016) which established that agency banking increases accessibility and convenience of financial services, thereby promoting financial inclusion among SMEs. The findings also demonstrated that mobile money services have a positive and substantial impact on financial inclusion among SMEs in Nairobi County, Kenya, as shown by a significant value of 0.003 and a beta value of 0.501. Based on the findings, the degree of financial inclusion among SMEs in Nairobi County increases by 0.501 units when mobile money services are expanded by one unit. The findings of aligns with Nzyoka (2020) who established that mobile banking services help SMEs become more financially included.

TABLE 9 Model Coefficient

Predictors	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	-0.095	0.594		-0.160	0.873
Online Banking Services	0.285	0.124	0.175	2.293	0.024
Digital Lending Platforms	0.465	0.136	0.213	3.408	0.001
Agency Banking Platforms	0.098	0.075	0.150	1.304	0.196
Mobile Money Services	0.501	0.163	0.181	3.075	0.003
Financial Inclusion					

The optimal regression model translates into:

Financial Inclusion in SMEs = -0.095 + 0.501(Mobile Money Services) + 0.465 (Digital Lending Platforms) + 0.285 (Online Banking Platforms) + 0.098 (Agency Banking Platforms)

Conclusion

The study concluded that online banking services play an important role in enhancing financial inclusion among SMEs in Nairobi County, despite the fact that their adoption and usability remain moderate. The study also concluded that digital lending platforms are instrumental in improving SMEs' financial inclusion by providing access to credit. In relation to agency banking, the study concluded that while the presence of banking agents has improved geographical access to financial services, SMEs remain uncertain about its effectiveness in meeting their broader financial needs.

The study concluded that mobile money services significantly contribute to financial inclusion among SMEs in Nairobi County, even though perceptions of their daily use and transaction costs were mixed. While SMEs recognize the usefulness of mobile money in facilitating payments, savings, and business operations, concerns about unclear and sometimes high transaction charges hinder full adoption. Nonetheless, strengthening the affordability, transparency, and reliability of mobile money services can expand opportunities for SMEs by improving access to essential financial services.

Recommendations

Based on the findings, it is recommended that commercial banks and financial service providers enhance the usability and functionality of online banking platforms to make them more accessible, user-friendly, and SME-oriented. This could involve simplifying navigation features, integrating customer support systems, and offering training sessions for SMEs to build confidence and promote more frequent use, which would strengthen their financial inclusion. Based on the findings, digital lending platforms should focus on improving the affordability and transparency of their loan products by offering flexible repayment terms, reducing interest rates where possible, and ensuring clear communication of all lending conditions. Such measures would not only enhance trust among SMEs but also expand their access to credit facilities that support sustainable business growth and financial inclusion.

Based on the findings, banking institutions should strengthen agency banking by expanding agent networks, equipping them with broader financial services beyond basic transactions, and ensuring agents are adequately trained to meet SMEs' diverse needs. This would improve SMEs' confidence in agency banking as a viable channel and enhance its contribution to financial inclusion, particularly in areas where traditional banking infrastructure is limited. Based on the findings, mobile money service providers should review and standardize their transaction costs while increasing transparency on charges to encourage broader adoption among SMEs. In addition, efforts to strengthen the reliability and security of mobile money platforms would promote their wider use in facilitating payments, savings, and other financial activities, thereby significantly advancing SMEs' access to essential financial services and deepening financial inclusion.

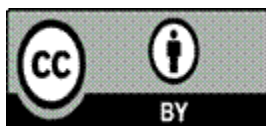
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Yang, X.-S., Sherratt, S., Dey, N., & Joshi, A. (Eds.). (2022). *Proceedings of Sixth International Congress on Information and Communication Technology*. Springer Singapore.



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