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Mobile banking and growth of Jua Kali enterprises in Makueni county

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Abstract
This study investigated the impact of mobile banking on the growth of Jua Kali enterprises in Makueni County, Kenya. The target population comprised 2,350 registered Jua Kali enterprises, from which a stratified random sample of 342 respondents was selected. Primary quantitative data were collected using structured questionnaires and analyzed through descriptive statistics and inferential statistics. The findings showed that while mobile banking was moderately integrated, with some enterprises deriving a substantial share of their revenues from mobile banking platforms, its overall effect on growth was positive though statistically insignificant ($\beta = 0.011$, $p = 0.837$). Among the indicators, reduced cash-handling risks and consistent savings patterns demonstrated relatively stronger practical importance in supporting business resilience and financial stability. These results revealed that mobile banking contributes to enterprise sustainability by enhancing liquidity management, promoting savings culture, and lowering operational risks, although its direct effect on revenue growth remains modest. The study concluded that mobile banking serves as a vital financial infrastructure for informal enterprises, such as the Jua Kali sector, and recommends improvements in digital infrastructure, financial literacy, and tailored banking products to strengthen its role in supporting the growth of Jua Kali enterprises.

Keywords: Mobile banking, growth, jua kali enterprises, makueni county, digital finance

Introduction

Mobile banking has revolutionized financial service delivery in Kenya, offering individuals and enterprises a convenient, secure, and affordable way to transact without the constraints of traditional banking infrastructure. With the penetration of mobile money platforms such as M-PESA, Equitel, and Airtel Money, financial inclusion has expanded significantly, particularly in rural and peri-urban areas where conventional banking services are scarce (Ouncho, Ondiek, & Bulla, 2023) [14]. By facilitating real-time transactions, savings, and credit access, mobile banking continues to shape the trajectory of small businesses and informal sector enterprises across the country (Mutio, 2019) [12].

The Jua Kali sector, which comprises micro and small informal enterprises engaged in crafts, carpentry, metalwork, leather, and other artisanal activities, plays a vital role in Kenya's economic development (Kenya National Bureau of Statistics [KNBS], 2021). It provides employment opportunities for millions of Kenyans, contributes to household incomes, and fosters innovation within local communities (FSD Kenya, 2020) [5]. Recognizing its importance, the Kenya National Federation of Jua Kali Associations (KNFJKA, 2022) developed a five-year strategic plan (2022–2027) to enhance competitiveness, productivity, and digital adoption in the sector. However, despite this recognition, the sector remains highly informal and faces unique financial and operational challenges.

Makueni County presents a critical case for understanding the link between mobile banking and the growth of Jua Kali enterprises. The county is largely rural, with many small-scale artisans and entrepreneurs relying on informal networks for financing and market access. Studies on micro and small enterprises in Makueni have demonstrated that mobile banking significantly enhances business growth through improved accessibility, cost-effectiveness, security, and efficiency of transactions (Muathe, 2021) [9]. However, these studies have not specifically addressed the Jua Kali sector, whose dynamics and constraints may differ considerably from those of other micro and small enterprises.

Existing studies highlight the transformative role of mobile banking in addressing financial exclusion by lowering transaction costs, enhancing liquidity, and expanding access to credit facilities (Ouncho, Ondiek, & Bulla, 2023) [14]. Mobile banking services significantly contribute to the growth of micro and small enterprises by improving accessibility, reducing costs, enhancing security, and increasing efficiency (Muathe, 2021) [9]. Also, mobile banking adoption enhances the financial performance of SMEs in Nairobi County by facilitating revenue growth, easing access to working capital, and strengthening operational efficiency (Mue, 2021) [10]. Collectively, these findings affirm the potential of mobile banking as a catalyst for enterprise growth, yet they also underscore the need to examine its specific impact on highly informal Jua Kali enterprises, which face unique barriers such as lack of collateral, limited digital literacy, and irregular market demand.

The Jua Kali sector faces distinct constraints that complicate mobile banking adoption. Informal businesses often struggle with inadequate access to credit, minimal business record-keeping, limited awareness of digital services, and infrastructural barriers such as weak mobile network coverage. Mutio (2019) [12] observed that while mobile banking supports artisans in Nairobi by improving cash flow and reducing transaction delays, uptake was hindered by low levels of financial literacy and trust in digital platforms. Such challenges may be even more pronounced in rural contexts like Makueni, thereby influencing the effectiveness of mobile banking in driving enterprise growth.

At the same time, the government and financial institutions have initiated programs aimed at strengthening financial inclusion for informal enterprises. Partnerships such as

those between KCB Bank and the Jua Kali Federation in 2023 have sought to expand access to affordable loans,

Enhance digital literacy, and provide market linkages (Okello, 2023) [13]. However, despite these efforts, empirical evidence on the extent to which mobile banking alone contributes to enterprise growth in rural counties remains sparse. Without such evidence, policy and product development risk being misaligned with the realities of artisans and micro-entrepreneurs on the ground (Aberi, 2022) [1].

While mobile banking is widely acknowledged as a catalyst for financial inclusion and business growth (Okello, 2023) [13], there is limited empirical understanding of its influence on Jua Kali enterprises in Makueni County. Most prior studies focus on MSEs broadly, overlooking the specific needs, barriers, and growth trajectories of informal artisans (Aberi, 2022) [1]. As a result, the role of mobile banking in reducing financial constraints, enhancing productivity, and promoting sustainability within the Jua Kali sector remains underexplored. This knowledge gap hinders the formulation of targeted policies and financial solutions for the sector.

This study, therefore, seeks to investigate the influence of mobile banking on the growth of Jua Kali enterprises in Makueni County. By examining how factors such as cost, accessibility, security, and efficiency shape enterprise outcomes, the research will contribute to a deeper understanding of the opportunities and challenges posed by mobile banking for informal enterprises. The findings will inform policymakers, financial service providers, and development agencies on strategies to strengthen the role of digital finance in supporting the resilience and growth of the Jua Kali sector.

Literature Review

Akter *et al*. (2021) [2] explored how mobile banking influences financial inclusion across 17 developing nations between 2011 and 2021. Their study employed the Sarma Index of Financial Inclusion (IFI) model, integrating mobile money accounts as a penetration metric and mobile banking outlets as an access measure. The findings revealed that mobile banking enhances financial inclusion by improving penetration, access, and usage, though its impact varies by region. Notably, African countries experienced more significant improvements compared to other regions, suggesting that mobile banking plays a particularly transformative role on the continent.

Qamruzzaman and Wei (2021) [15] analyzed mobile and internet banking within Asia, investigating their role in financial inclusion through what they termed the "inclusion matrix." Their quantitative analysis demonstrated that mobile banking effectively reduces financial gaps among rural and low-income populations. It expanded access to financial services such as savings accounts, credit facilities, and payment systems, thereby improving economic opportunities. The study further concluded that mobile banking contributes to inclusive economic growth by empowering individuals with financial tools that promote better resource management.

Asongu and Odhiambo (2021) [3] examined the relationship between mobile banking and inclusive development in 93 developing nations. Focusing on growth quality, inequality, and poverty, they highlighted mobile banking as a mechanism for promoting more equitable growth. Their comparative analysis suggested that greater adoption of mobile banking could mitigate inequality and poverty while enhancing development quality, particularly in higher quantiles of inclusive development. The study's policy recommendations emphasized expanding mobile banking applications as a strategy to counter immiserizing growth and persistent inequality in developing contexts.

Israel (2022) [6] investigated mobile banking's impact on small and medium-sized enterprises (SMEs) in Anambra State, Nigeria. Drawing on Task Technology Fit theory, the study employed a survey design and statistical analysis to establish that mobile banking tools—such as instant payments, fund transfer machines, and point-of-sale systems—significantly enhanced SME performance. The researcher recommended increased marketing and customer education on digital financial services, arguing that broader adoption would boost profitability and competitiveness among SMEs.

Banda (2022) [4] examined micro and small enterprises (MSEs) in Lusaka District, Zambia, using a mixed-methods approach. The results indicated that mobile banking had a relatively weak effect on the financial performance of MSEs. The study pointed to challenges such as limited access to credit, weak marketing opportunities, inadequate managerial capacity, and low education levels among entrepreneurs. Although the link between mobile banking and financial performance was modest, Banda stressed the importance of MSEs in job creation and urged policymakers to enhance access to financing and expand the capacity of mobile money providers to support small businesses.

Mutio (2021) [12] investigated the impact of mobile banking on micro-enterprises in Nairobi's Gikomba Market. The study found that traders primarily used mobile banking for basic financial services such as sending, saving, and withdrawing money, in addition to bill payments and short-term loan access. Results demonstrated a significant positive relationship between mobile banking use and micro-business performance. The researcher recommended expanding mobile banking features, including real-time alerts and unsecured loans, to strengthen support for informal sector businesses.

Similarly, Muathe (2021) [9] assessed how mobile banking affects the growth of micro and small enterprises in Makueni Sub-County. The study found that factors such as accessibility, affordability, security, and efficiency significantly influenced business growth. Based on these findings, the researcher emphasized the need for awareness campaigns to encourage mobile banking adoption and for policy frameworks that enhance cashless transactions to support financial inclusion and enterprise sustainability.

Mue (2021) [10] investigated SMEs in Nairobi County, focusing on how mobile banking contributes to financial performance. The study revealed that mobile banking improved efficiency by facilitating payments, transfers, loan access, savings, and supplier transactions. Importantly, the research established a strong positive correlation between mobile deposits and financial performance, concluding that mobile banking plays a crucial role in enhancing SME efficiency and reducing operational costs relative to traditional banking methods.

Overall, the reviewed literature confirms the broad consensus that mobile banking positively influences financial inclusion and enterprise performance across different contexts (Akter *et al*., 2021 [2]; Asongu & Odhiambo, 2021 [3]; Israel, 2022 [6]; Mue, 2021 [10]; Muathe, 2021 [9]; Mutio, 2021) [12]. However, the magnitude and consistency of these effects vary significantly depending on geographical location, enterprise size, and the degree of informality within businesses. For example, while studies in Nigeria and Kenya report strong positive impacts on SMEs and micro-enterprises (Israel, 2022 [6]; Mue, 2021 [10]; Mutio,

2021) [12], evidence from Zambia suggests a weaker link between mobile banking and MSE performance (Banda, 2022) [4]. These variations underscore the importance of context in shaping how mobile banking is adopted and leveraged for business growth.

Despite these insights, several research gaps remain. First, much of the existing scholarship emphasizes SMEs and MSEs in urban or semi-urban contexts (Israel, 2022 [6]; Mue, 2021) [10], while limited attention has been given to highly informal enterprises such as those in the Jua Kali sector, particularly in rural counties like Makueni. Second, although prior studies have investigated factors such as accessibility, affordability, and efficiency (Akter *et al.*, 2021 [2]; Muathe, 2021) [9], less is known about how structural challenges, such as limited digital literacy, lack of collateral, and irregular market demand, mediate the relationship between mobile banking and enterprise growth (Banda, 2022 [4]; Mutio, 2021) [12]. Addressing these gaps is critical for tailoring mobile banking solutions to the realities of informal enterprises and ensuring that digital finance contributes to inclusive and sustainable development across Kenya and other developing economies.

Methodology

1. Research Design

The research adopted a correlational research design and followed a quantitative approach. This design was appropriate for determining the kind and strength of the associations between mobile banking and the growth of Jua Kali enterprises. The design facilitated the application of inferential statistics, especially, regression analysis, to find out the presence of the relationship between changes in mobile banking use and changes in enterprise growth.

2. Target Population and Sampling

The research population was 2,350 registered Jua Kali entrepreneurs in Makueni County (Makueni Jua Kali Association, 2024). These entrepreneurs are engaged in different business areas such as carpentry, construction, making shoes, car wash, selling food and welding. Mugenda and Mugenda (2015) [11] indicated that by identifying a target population with an obvious relationship to the research area of interest, one is able to ensure that the information received is topical and the right representation of the phenomena under study.

To guarantee selection of different sub-sectors in the population, stratified random sampling method was employed. To ensure adequate and fair representation, the sample size of the respondents in a given sub-sector was proportionate to the size of that sector in the target population. Given the fact that the study included the users of mobile banking, the sample population was selected purposely by asking them questions about whether they use such digital financial service.

Table 1: Sample Size

Category	Population	Sample size
Construction and materials production	622	89
Street food vendors	548	82
Carpentry	502	72
Car wash and repair services	202	31
Traditional art (wood carvings, beadwork, paintings)	168	24
Painting and decorating services	162	24
Shoe and leather goods making	146	21
Total	2350	342

3. Data Collection

A structured questionnaire with closed-ended questions was used to gather quantitative primary data. A questionnaire was appropriate for this study because it allows standardization of questions which guarantees comparability and consistency of the responses from participants (Saunders *et al.*, 2019) [16]. The questionnaires were distributed to the participants and picked after filling.

3.4 Data Processing and Analysis

After collection, the data was analysed using both descriptive and inferential statistics, which gave a complete picture of the role that digital finance plays in the growth of Jua Kali businesses in Makueni County. The impact of mobile banking on the growth of Jua Kali enterprises was determined through regression analysis.

The regression equation was expressed as:

$Y = \beta_0 + \beta_1 X_1 + \epsilon$

Where;

Y – Growth

β_0 – Constant

β_1 – Regression Coefficient

X_1 – Mobile banking

ϵ - Error term

Results and Discussion

A total of 342 questionnaires were distributed to the study participants. Out of them 266 were fully filled and returned giving a response rate of 77.7%, which was strong and sufficient to draw conclusions. The reliability test obtained a Cronbachs Alpha of 0.897, which was satisfactory.

1. Demographic Characteristics

The demographic analysis indicates that Jua Kali enterprises are dominated by males (74.1%) and women are just 25.9%. The sector is young, with 48.5% of the respondents between 26-35 years, implying a high involvement of young entrepreneurs. The level of education is low, as only 41.0% of the population has finished secondary education, and only 6.0 percent has university education, which is rather low in terms of higher education. On business experience, most respondents (57.5%) had operated their own businesses between one and three years which indicated a young and developing entrepreneurial base. Enterprise distribution shows that construction and materials production (26.3%), street food vending (24.4%), and carpentry (22.2%) are at the top with small shares at 9.4%, 6.0% and 4.9% respectively occupied by car wash and repair, painting, traditional art, and leatherwork. This profile can be used to

highlight the necessity of digital finance tools that are accessible, easy to use, and attentive to the interests of young and moderate educated entrepreneurs in different sectors.

Table 2: Demographic Characteristics

Characteristic	Category	Percentage (%)
Gender	Male	74.1
	Female	25.9
Age	26–35 years	48.5
Education	Secondary education completed	41.0
	University degree	6.0
Business Experience	1–3 years	57.5
Enterprise Type	Construction and materials production	26.3
	Street food vendors	24.4
	Carpentry	22.2
	Car wash and repair services	9.4
	Painting and decorating services	6.8
	Traditional art (woodwork, beadwork, etc.)	6.0
	Shoe and leather goods making	4.9

2. Mobile Banking and Growth of Jua Kali Enterprises

The study employed descriptive statistical analysis to evaluate the perceived impact of mobile banking on revenue growth among Jua Kali enterprises using five key indicators: increase in monthly business transactions, reduction of cash-handling risks, and access to mobile credit for stock investment, consistent savings practices, and reduction in transaction costs. These indicators were measured on a five-point Likert scale, where 1 represented a very small extent and 5 represented a very great extent, to determine the degree to which mobile banking services influence enterprise revenues. The mean scores presented in table 3 below provides the summary of means for each indicator

Table 3: Descriptive Statistics

Indicator	Mean
Increased number of monthly business transactions.	2.05
Reduced cash-handling risks and enhanced sales efficiency	2.18
Mobile credit has improved stock investment	2.09
Consistent savings patterns and better financial discipline	2.14
Reduction in transaction costs	2.14
Composite Mean Score	2.12

The descriptive analysis revealed that mobile banking contributes to revenue growth among Jua Kali enterprises only to a small extent, with an overall mean score of 2.12. Increased monthly transactions (M = 2.05) and improved stock investment through mobile credit (M = 2.09) showed relatively weak effects, suggesting that while mobile platforms facilitate payments and provide credit access, their impact on sales growth and investment remains minimal due to small loan limits, high interest rates, and the substitutive nature of mobile payments over cash. Similarly, reduced cash-handling risks (M = 2.18) and consistent savings patterns (M = 2.14) indicated modest benefits, highlighting that although mobile banking reduces theft risks and supports financial discipline, challenges such as low profit margins and high transaction charges restrict its broader usefulness. The reduction in transaction costs (M = 2.14) was also perceived as limited, likely because service and withdrawal fees offset potential efficiency gains. Collectively, these findings suggest that while mobile banking provides important conveniences, its current influence on revenue growth among Jua Kali enterprises in Makueni County is constrained by structural and operational barriers.

Table 4: Revenue Received via Mobile Banking

Response	Frequency	Percentage
0	127	47.7
1–25%	17	6.4
26–50%	14	5.3
51–75%	88	33.1
76–100%	20	7.5
Total	266	100.0

Table 4 further reveals that almost half of the respondents (47.7%) did not use mobile banking to get any share of their revenue. The moderate adoption was 33.1% with one out of three reporting that mobile banking contributed between 51-75 percent of their business income. A lower portion, 7.5%, revealed a strong dependence on mobile banking as 76-100 percent of their revenue were being transacted via the platform. The other respondents used mobile banking at a lower rate, with 6.4% of the respondents' earning 1-25 percent and 5.3% receiving 26-50 percent of their revenue via mobile banking platforms.

The overall results therefore showed that though mobile banking is accessible to Jua Kali businesses in Makueni County, it has not had much effect on revenue growth. The descriptive statistics presented a compound mean of 2.12 which implies that mobile banking only provides a minor contribution to major indicators like number of transactions monthly, access to credit, and discipline in saving, decreasing cash risk, and lowering transaction costs. Such a poor impact is indicative of a limitation of the small size of a loan, high interest rates, transaction fees and the fact that mobile payment is likely to in place of, not increase cash sales. Along these lines, adoption trends showed that only 47.7% of the respondents used mobile banking to collect revenue, with only one-third (33.1) moderately relying on the system to collect 51-75 percent of their revenue, and a very small percentage (7.5) relying heavily on the system to generate the majority of their business income. Combined with the abovementioned findings, it suggests that despite the convenience of mobile banking and certain operational advantages, its contribution to the consistent increase in revenues of Jua Kali businesses is rather small and is mostly limited by the financial, structural and cost factors.\

3. Regression Analysis

When the five indicators of mobile banking were entered into the regression model, all of them exhibited positive coefficients, indicating that mobile banking has some potential to support revenue growth among Jua Kali enterprises. However, none of the indicators reached statistical significance at the conventional 5% threshold as shown in table 5, suggesting that their influence is weak and inconsistent in practice.

Table 5: Regression Coefficients

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.	Collinearity Statistics
(Constant)	-0.162	0.498	—	-0.325	0.746	—
Increased number of monthly business transactions	0.028	0.061	0.041	0.459	0.647	0.718
Reduced cash-handling risks and enhanced sales efficiency	0.032	0.058	0.049	0.552	0.581	0.705
Mobile credit has improved stock investment	0.021	0.060	0.032	0.350	0.727	0.693
Consistent savings patterns and better financial discipline	0.019	0.059	0.028	0.322	0.748	0.701
Reduction in transaction costs	0.025	0.057	0.037	0.439	0.662	0.709

The coefficient of increased number of monthly business transactions was β=0.028 (p = 0.647) with a positive and statistically non-significant effect. This implies that as much as mobile banking can ease the payment procedure and enable more frequent customer interactions it does not translate largely to all time growth of most businesses. The small impact can be attributed to low adoption rates among the respondents, replacement of cash transactions instead of establishing new sales and relatively low transaction volumes characteristic of the Jua Kali industry.

Reduced cash-handling risks and enhanced sales efficiency had a coefficient of 0.032 (p = 0.581) which was also positive but not significant. Though mobile banking has been viewed as minimising the theft, improving transparency, and lowering the risks of carrying cash, the weak statistical relationship in this case means that the benefits do not necessarily translate into revenue growth. The perceived benefits of efficiency gains may be watered down by high transaction costs, network breakdowns and low profit margins per day.

The mobile credit has improved stock investment coefficient was β=0.021 (p = 0.727) which is insignificant once again. This implies that although mobile banking opens up possibilities of microcredit, the loans tend to be too small, too costly or too rigid to spur significant enterprise growth. A significant number of Jua Kali businesses might not be able to take up mobile loans because of the high-interest rates and limited terms of repayment and this restricts the amount of business investment or growth that mobile credit can generate.

Consistent savings patterns and better financial discipline had a β=0.019 coefficient (p = 0.748) that was also not statistically significant. The fact that savings services in mobile banking systems assist certain entrepreneurs in developing financial discipline is true, but the findings suggest that the savings are not reflected in revenue growth that can be detected. This may be because of the fluctuating nature of the incomes of informal enterprises that restrict their ability to maintain savings, or because most of the savings are consumed instead of being invested in the business.

Finally, the reduction in transaction costs coefficient was β=0.025 (p = 0.662), positive, but not significant. Although mobile banking can help reduce the costs associated with transactions, in practice, withdrawal fees and service fee cost frequently neutralize the savings, restricting the overall financial gain.

Collectively, as shown in table 6 below the composite regression coefficient of mobile banking (β = 0.011, p = 0.837) proves that the overall impact of mobile banking on the revenue growth in the Jua Kali businesses is negligible. These results emphasize that mobile banking offers operation conveniences, but the operation of the service is limited by structural factors like expensive costs, low loan amounts, and low adoption rates to facilitate immense business growth of the informal sector.

Table 6 Regression Coefficient

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.145	.506		-.287	.775		
	Mobile Banking	.011	.051	.013	.206	.837	.798	1.253
a. Dependent Variable: Growth								

Conclusion and Recommendations

The main objective of this study was determining the impact of mobile banking in the growth of Jua Kali businesses in Makueni County, Kenya. The paper evaluated mobile banking adoption and impact using five indicators comprising an increase in monthly transactions, lessening cash-handling risks, access to mobile credit, consistent savings trends, and decreases in transaction costs and evaluated how they contribute to revenue growth. In the descriptive analysis, the total contribution of mobile banking to revenue growth was found to be low with a composite mean score of 2.12. This implies that, though entrepreneurs already know about the conveniences provided by mobile banking, its impact on the increase of

revenues and fortification of growth within the Jua Kali sector is minimal.

The results indicate that the uptake of mobile banking in the case of enterprises is not evenly distributed. Almost half (47.7) of the respondents did not rely on mobile banking to receive their business revenues, with 33.1% indicating that they depended moderately on it, with 51-75% of their income using the platform. Very few (7.5 per cent) reported being heavily dependent with more than three-quarters of their revenue being in mobile banking. The trends indicate that there is a great gap in the adoption of digital finance, which is facilitated by low digital literacy, fear of transaction costs, and use of traditional means of payment (cash) (Mue, 2021) [10].

In addition, when the specific indicators were analyzed, they provided small rewards in terms of mobile banking, which shrank the risks of cash handling (M = 2.18), and nurturing financial discipline through savings (M = 2.14). Nevertheless, there were very small effects on the increasing monthly transactions (M = 2.05), investing in stocks using credit (M = 2.09), and reducing transaction costs (M = 2.14). It implies that mobile banking is facilitating more secure and formal business operations, but it is yet to meet its full potential in promoting enterprise growth, mainly because of operation restrictions such as expensive service charges, low lending amounts, and unreliable flow of earnings among informal firms.

The weak effect of mobile banking on increase in revenue was also substantiated by the regression analysis where, the overall coefficient value is statistically irrelevant (B = 0.011, p = 0.837). All five indicators were not significant although each have positive coefficients. This highlights the fact that mobile banking though offering convenience of operations does not directly correlate to quantifiable increase in the existing Makueni County business environment. The barriers to the transformative ability of mobile banking in Jua Kali enterprises appear to be structural barriers, such as transaction costs, a lack of financial literacy, and access to affordable mobile credit.

Combined, the research finds out that mobile banking at the moment does not have a significant role to promote the increase of revenue among Jua Kali businesses in Makueni County. Its investments are more visible in enhancing efficiencies, risk reduction and aiding in discipline, but not in increasing sales or market. Mobile service providers and policymakers need to respond to these structural barriers to make mobile services more effective, through reducing transaction costs, increasing the access of mobile credit at low prices, and improving digital literacy among informal entrepreneurs. In so doing, mobile banking might turn into more than a mere convenience, and become a financial infrastructure that can propel the Jua Kali sector to grow over the long term.

However, this study had a number of limitations. First, it only targeted Jua Kali businesses in Makueni County and so the findings cannot be generalized to other areas or other businesses where the dynamics may be different. Second, the research was based on self-reported data of entrepreneurs, which are prone to recall bias or social desirability bias, which can impact the validity of responses.

At policy level, the study recommends that decision should be made to enhance digital and financial infrastructure in the rural counties. The problems that continue to affect many Jua Kali enterprises include poor access to affordable mobile banking services and low network connectivity and this may inhibit their capability of fully utilizing digital finance. Mobile banking would be more affordable and attractive to small businesses because of policies that lower transaction fees and stimulate competition between mobile services providers.

Also, the study recommends capacity building in rural business settings. Majority of informal business owners especially in rural settings have a very low financial literacy level, which restricts their mobile banking use to simple transfer services, as opposed to more sophisticated services like record keeping, supplier payments, or credit access. The county governments and the enterprise development agencies ought to make investments in training that develops the digital financial capability of the Jua Kali entrepreneurs. These efforts would assist companies in streamlining mobile banking platforms to expand adoption.

In the case of financial institutions and mobile service providers, there is a need for more innovation in product development, to suit the distinctive demands of the informal sector. Individualized services like micro-credit, mobile savings applications, and electronic book-keeping platforms would take a step further and enable Jua Kali businesses to risk management, financial planning, and expansion.

The entrepreneurs themselves have a role to ensure that the benefits of mobile banking are maximized. They are supposed to supplement adoption of mobile banking with enhanced business practices, including keeping digital records of transactions, applying to credit using mobile history of data, and using mobile platforms to sell their products. Therefore, they can increase customer confidence, financial management, and market opportunities through the adoption of mobile banking, thus amplifying the effect of mobile banking adoption on enterprise development.

Directions of future research are also determined in this study. Although it dwelled on growth indicators like customer transactions, liquidity, customer retention and customer base expansion, future research must investigate more comprehensive measures of performance such as profitability, business resilience and job creation. Moreover, comparative analysis of the counties would assist in determining the differences between the regions, and longitudinal research would be helpful in determining causality of mobile banking use and the growth of enterprises in the long term.

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