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TECHNOLOGICAL INNOVATIONS AND FINANCIAL INCLUSION OF SMALL AND MEDIUM ENTERPRISES IN NAIROBI COUNTY, KENYA

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ABSTRACT

This study sought to examine the effects of technological innovations and financial inclusion among SMEs in Kenya. Specifically this study addressed the following specific objectives:- To determine the effect of mobile banking on usage of financial services among of Small and Medium Sized Enterprises in Nairobi County, secondly to evaluate the influence of agency banking on access to financial services among Small and Medium Sized Enterprises in Nairobi County. The study adopted a descriptive research design. The study was supported by diffusion innovation theory and theory of financial innovation theory. The target population for the study comprised 300 SMEs that are registered and operates as Kariobangi Light Industries in Nairobi County. The sampling design employed stratified random sampling based on the line of trade a firm operates yielding a sample of 155 enterprises. The study adopted a structured questionnaire as the primary method for collecting cross sectional data. Data was analysed by descriptive statistics mainly frequency distributions and mean scores. Data was further analysed using inferential analysis mainly correlation where the objective was to determine the nature and strength of relationship among the variables of the study. The main findings of this study was that mobile money platforms or rather the emerging technological innovations in the business environment have facilitated financial inclusion mainly by reducing cost of doing business, improved access to various financial services, improved access to financial credit and savings support. It was therefore concluded that technological innovations have helped deepen financial inclusion within the SMEs.

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INTRODUCTION

Financial inclusion is viewed as an important driver of economic growth; thus it is placed on top agenda of many developing nations. Financial inclusion creates a social condition where all people are able to access desired financial services to manage their finances well. Thus, financial inclusion can be viewed as concerted efforts taken by various financial institutions to provide their services to low income people at affordable prices. Indeed, the concept of financial inclusion is seen as important in growth of both small and big business as it helps more people to engage in economic activities.

Accordingly, financial inclusion is seen as the easy of accessing financial services, and their affordability (Sarma and Pais, 2011). More so, Sarma and Pais (2011) considers usage as a critical element of financial inclusion. However, Triki and Faye (2013) holds that financial inclusion should be looked at in terms of usage and not quality of services offered. On their part, Johnson and Arnold (2015) consider it from the viewpoint of affordability and variety of financial services offered. Demirgue-Kunt and Levine (2008) state that financial inclusion as the removal of barriers to financial services. While there are some differences in definitions, the basic concept places stronger emphasis on accessibility, affordability, quality and usage of financial services.

Financial institutions in Kenya such as banks and micro-finances have adopted new technologies that have increased financial inclusion in the country (Misati, Roseline et al. 2010). For instance, banks are providing electronic money transfer, mobile banking, internet banking online accounts, ATMs among others. CBK report (2015) underlined that these technologies contribute significantly in increasing customer base, increase capital base and increasing their revenues. Rasheed et al. (2019) point out that among the main trends that seems to have gained strong presence is banking services. Rasheed et al. (2019) adds that the banking is slowly edging away from dependence on traditional banking halls, and are instead moving to new platforms driven by technology particularly telecommunications. However, some of these new technologies are emerging as an opportunity to non-banking operators such like Safaricom, but presenting a threat to traditional banks (Jack and Suri, 2011).

Data from CBK (2015) indicate that SMEs in Kenya contribute nearly 98% of production in the private sector. Thus, SMEs play an important role in providing income generating activities particularly among the low earning people. Sadly, CBK (2015) observed that entrepreneurs operating SMEs are mainly driven by the need to get out of poverty and lack of getting formal employment. Majority of enterprises operating in Kenya are SMEs. Figures from CBK (2015) show that over 50% of the SMEs employ less than five people. More so, nearly70% of these SMEs earns less than five million annually. Data as well indicate that less than 10% of the registered SMEs have accessed a bank loan. Underperformance of many of these SMEs is associated with advance and challenging business environment.

Kenya has continued to experience rapid technological innovation in many sectors including the financial sector. According to Frame and White (2014), technological innovation as introduction of a novel process, service or product that reduces risks, costs and offers better services or products. Innovative financial services present the means and tools to overcome obstacles that hinder financial inclusion, and contribute to economic growth. Frame and White (2014) points out that digital finance is being viewed as a way of offering opportunities to advance financial inclusion by reducing the costs involved in offering the financial services. The use of automated money transfer and computerization of services has been viewed as essential to enhance financial inclusion. Villasenor, West and Lewis (2015) underlined that technological and innovation advancement that has occurred in Kenya provides opportunity to offer low income earners banking services such as credit extension and savings. More so, advances in account management and improvements in business sector has brought new opportunities for lower earners.

Statement of the problem.

In Kenya, the financial services are relatively developed when compared to other countries in Africa. The financial service sector is inclusive of building societies, microfinance institutions, banks, insurers, postal service, and foreign exchange bureaus. Financial innovation is said to provide businesses with easy access to activities such as deposits, repayments, money transfer, disbursements and withdrawals. Financial innovation has been defined as acts of developing and making new financial instruments popular including new financial technologies, markets, and institutions. Financial innovations are linked to more risks therefore, financial institutions such as microfinance do a thorough risk analysis on small businesses before lending them money. According to Otiato (2016), financial institutions tend to be hesitant to provide SMEs with loans especially if they are less profitable citing higher credit risk. Financial innovations like telephone banking or internet banking are available in Kenya, yet SMEs still find it hard to get finance to help run their businesses. This means that irrespective of financial innovations that would make access to finance easier, SMEs are still not getting breakthrough with issues of business financing from financial institutions. Financial innovations such as agency banking, M-shwari, and M-Pesa are technological innovations crucial to some SMEs as they have been able to access finances to improve their business. However, access to these sources of financing is not widespread for all SMEs in Kenya. The SMEs' performance levels and financial inclusion are closely linked together. Financial inclusion in Kenya is a phenomenon that has existed over a decade seeking to facilitate economic growth and reduce poverty. This is done by making access to financial services easier to SMEs and business in the category of lower income. Under financial sector's Vision 2030, improving financial inclusion is a priority to reduce lack of financial access by more than 20% (Gachie et al., 2017). A study by World Bank indicates that there are still many SMEs that cannot access financing in Kenya from the financial sector irrespective of their high potential. The Medium-Term Plan is one of financial inclusion programs that was established in pursuit of increasing financial access to SMEs that are underserved or unserved by the financial institutions to get credit at affordable prices. The financial access has improved for all quintiles, but not for those in the in the bottom quintile where most SMEs fall under. Even though financing accessibility has improved for SMEs over the last decade, the financial programs developed for financial inclusion is still not meeting its intended objectives for SMEs.

The existing research has mostly focused on how most SMEs have no easy access to financing to facilitate financial growth. The main issues that have been identified to prevent SMEs from accessing and securing finances from financial institutions which include collateral, administration, and information requirements. Many local banks and micro financing institutions are often the primary financers of SMEs, but have mostly closed their doors for these businesses terming them as high risks for loans (Ahmed et al., 2015). However, there is little study on financial innovation and how SMEs use them to fill in the gap of resolving cases on financing barriers. Technological innovations such M-Pesa are financial products that enable SMEs to apply and get short-term credit. Some studies have discussed issues of financial inclusion and others on technological innovations that can propel SMEs financial growth. Nevertheless, no studies have detailed these two topics together and how they affect SMEs. Therefore, this study will bridge research gap by studying technological innovations and financial inclusion of SMEs in Nairobi, Kenya.

Research objectives

The general objective of this study is to determine role of technological innovation on financial inclusion among Small and Medium sized enterprises in Kenya. Specific objectives of the study were;

a) To determine the effect of mobile banking on usage of financial services among of Small and Medium Sized Enterprises in Kariobangi Light Industries in Nairobi County.
b) To evaluate the influence of agency banking on access to financial services among Small and Medium Sized Enterprises in Kariobangi Light Industries in Nairobi County.

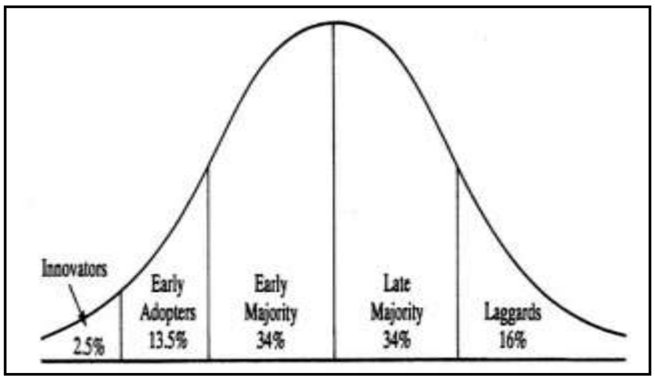
LITERATURE REVIEW

Theoretical Framework

Diffusion of Innovation Theory

This theory was developed in 1962 by E.M. Rogers, and it is used in explaining concepts of social sciences. The basis of this theory is communication where it aims at explaining the widespread of information regarding a product or service within the population (Syahadiyanti and Apol, 2018). With the diffusion of innovation theory, it demonstrates that the audiences are interested in innovative and new ideas that are presented to them. Users tend to compare the current innovation or idea with the previous products offered. They make decisions based on the ideas that have integrated the new technology. As such, diffusion of innovation theory provides that the variance in an individual's rate of adopting innovation is based on their perceived interests, value, types of decisions, and the promotion efforts of the agent of such innovation (Syahadiyanti and Apol, 2018). There are different stages of adoption of innovation as given below:

Figure 1: Adopter categorization



Source: Askarany (2016)

Innovators are characterized by their venturesome and risk-taking approach in the change process, and they represent only 2.5% of the social system population (Dearing and Cox, 2018). They are involved in quickly taking up new ideas, generating knowledge, and incorporating technology as a way of increasing the use of the new technology and innovation. As they are risk-takers, they tend to cope with the possibility of failures and uncertainty in the organization. Social systems are integral in improving the effectiveness of the process of adoption of innovation as it supports the innovators to introduce their innovations into the social systems. This innovation diffusion theory helps to appreciate that business operators will assimilate new innovations into their businesses differently, thereby necessitating the need for this study.

Theory of Financial Innovations

The theory of financial innovations was proposed by Silber (1983) premised on the idea that benefit expansion of money related foundations is the key reason of financial inclusion (Li and Zeng, 2010). The theory demonstrates that the primary thoughts behind the new innovations are the defects of the money related business sector, mostly the deviated data, office expenses and exchange costs (Błach, 2011). According to the theory, financial related innovations can be very new resolutions or simply customary means whereby latest component of development has been offered, enhancing firms' liquidity as well as expanding quantity new applicants, due to their qualifications on the situation (Ionescu,2012).

According to the theory, financial innovation is a critical motivating force of the financial system, which leads to better economic competence and enhanced economic advantage derived from the new and frequent changes (Sekhar, 2013). Financial innovations define financial developments by coming up with new ways of production, technological solutions, creating better return rates hence boosting the country's economy in general. The theory posits that the innovativeness improves the firms' competitive edge of a corporate and generates more earnings to the investors (Błach, 2011). Innovation is a tool used to solve, manage and transfer the entire extra burden. The application of innovations promotes growth of financial entities through improved allocation, efficiency and a reduction of financial and administration costs (Sekhar, 2013).

This theory is relevant to the subject under study since it provides imperative motives for adoption of financial innovations by firms. By adopting financial innovations, financial inclusion of firms especially small and medium sized enterprises is greatly increased. SMEs should therefore give priority to financial innovations that will give them a competitive edge and consequently promote growth.

Empirical Review

Khan and Khan (2018) study supports the argument on adoption of innovation by highlighting the role of the technology acceptance model (TAM). With this technology, organizations can easily predict the new trends in the innovation and ideas developed and determine the effectiveness of using the new technology in realizing meaningful results. TAM was utilized in explaining the usage of computer based on two aspects; perceived attitude and usefulness of the technology. Most of the users of the innovation tend to review the TAM and determine the idiosyncratic and social characteristics of the users when they are involved in adopting the new technology and innovation (Uwizeyemungu, Poba-Nzaou and St-Pierre, 2015). The formation of the TAM approach is based on the availability of labor and capital that can be used in assessing the shortcomings in the technology use and innovation in the sector. However, Wang and Sun (2019) study criticizes the use of TAM approach as being influenced by the external factors such as the suppliers, environmental attributes, competitors, and customers. It fails to take into consideration the new information technology initiative that should be adopted in maximizing the resources of the company. Also, TAM approach mainly considers the internal resources of the company. With the changing trends in the consumer behaviour, consideration should be on the reliance of the supply chain initiatives as a way of maximizing resource allocation and realizing success of the initiatives in the long-run (Woschke, Haase and Kratzer, 2017).

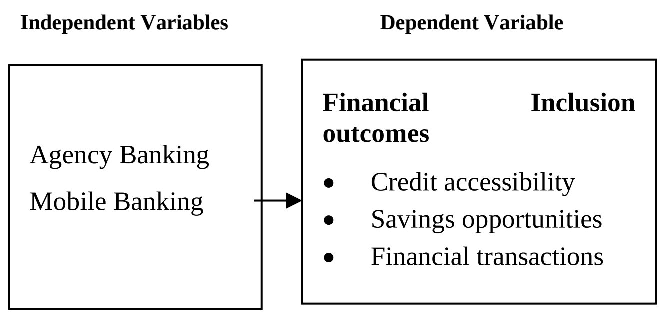
Ye and Lim (2017) conducted research on effects of innovations on the SMEs, and it highlighted the role that the determinants factors play in realizing the success of innovations being adopted by such SMEs. Some of the key determining factors include the ownership structure of the SMEs, training and education level of the employees, strategic changes, and market orientations. According to Zhou, Fang, Yang, Wu and Ren (2017), the implications of adopting these new ideas and innovations include product quality improving, market share increasing, and cost of material per unit reducing. Legal compliance with the safety and ecological regulations was assured when the management was concerned with improving innovative effects in the sector. With this in place, the quality of the operations of the SMEs can be improved when the safety needs and the health consideration is put in place when formulating innovative ideas.

According to Mamun (2018), financial inclusion has been a buzzword in the academic researcher in which importance has been placed on the important role in improving economic development especially for the countries that are less developed. For the success of SMEs in the economy, there are external factors such as the economic growth strategies, political policies, and technological advancement affects the productivity of the organization (Malagueño, Lopez-Valeiras and Gomez-Conde, 2018). With the social payments, the SMEs can benefit from the financial institutions that operate within the region. Ham, Choi and Jae-Nam (2017) study provides that there is a close relationship between the financial performance of SMEs and financial inclusion evident in the organization. Some of the socio-economic variables that are linked to the SMEs financial performance and successes including the inequality, income level, literacy rate of the population, and physical infrastructure. SMEs rely on these aspects in increasing the profitability and financial successes of the organization. There is a direct relationship between the growth in the financial performance of SMEs and the economic growth prevailing in the region (Suratna, 2018). An improvement in the economic growth can result to the increase in the financial performances of the SMEs.

Conceptual framework

As explained by Ravitch and Riggan (2012) conceptual framework is an essential research tool that assists the researcher to create understanding an awareness of the research phenomenon being examined. The conceptual framework diagram formulated for the present study (figure 1) derives insightful meaning from this study.

Figure 2: Conceptual framework



RESEARCH METHODOLOGY

This study adopted descriptive cross-sectional studies design. The target population for this study was 300 SMEs that are registered and operates as Kariobangi Light Industries in Nairobi County. The sampling formula $n=N/(1+Ne^2)$ formulated by Slovin in 1960 was used to arrive at the sample from total population of 300. Where by n= sample size, N= Population size, e= Error tolerance (in this case, the research used a confidence level of 95%).

In case the sample size was 157 enterprises. This will include SMEs operating in commercial and trade sector, light manufacturing, and services. For the respondents targeted were the owners of the SMEs.

The study adopted a stratified random sampling technique. This study adopted a structured questionnaire as the primary method of collecting data

The data was then transferred into SPSS version 25 for analysis. Data was analysed using descriptive and inferential statistics. Descriptive statistics mainly frequency distribution and percentages used to describe characteristics of the key variables of the study. Inferential analysis was carried out mainly using partial correlation in order to determine the nature and direction of relationship between among the variables.

The research instrument was tested for validity and reliability. A sample of thirteen (15) questionnaires was subjected to the pilot study. According to Creswell (2008), the rule of thumb is that 10% of the sample should constitute a pilot test.

DATA ANALYSIS, FINDINGS AND DISCUSSIONS

The research sample composed of 157 respondents, out of which 155 questionnaires were received back, with two (2) being either not filled or not returned at all. This translated to 98.7% response rate which was acceptable for data analysis.

Effect of mobile banking on usage of financial services among of Small and Medium Sized Enterprises in Kariobangi Light Industries, Nairobi County.

The objective was to determine the effect of mobile banking on usage of financial services among of Small and Medium Sized Enterprises in Nairobi County. To achieve this objective, the respondents were asked on how their use mobile banking had influenced their uptake of various financial services mainly on credit access, payment for supplies and other financial transactions. The responses were captured in a five likert scale format where respondents ranked their responses accordingly.

Table 1: Respondents perception on the effect of mobile banking on financial services

Effect	No effect	Least effect	Moderate effect	Significant effect	Very significant effect
Reduces costs of doing business	3(1.9 %)	12(7.7 %)	60(38. 7%)	49(31. 6%)	31(20. 7%)
Facilitates convenient cash transactions	13(5.4 %)	14(9.0 %)	49(31. 6%)	38(23. 9%)	44(28. 4%)
Makes banking easy	10(6.5 %)	15(9.7 %)	51(32. 9%	40(25. 8%)	39(25. 1%)
Allows access to wide range of financial services	8(5.2 %)	17(10. 9%)	46(29. 6%)	43(27. 7%)	41(26. 5%)

Table 1 above shows that more that 80% of the respondents believed that mobile banking had a moderate to very significant effect on their access to various financial services within their businesses. That mobile banking enabled them carry out financial transactions with ease, conveniently since they can perform these transactions without going to the banking halls. But more importantly is that mobile banking platforms provides the respondents with access to wide range of financial services that includes withdrawals from their bank accounts, deposits to their bank accounts. In order to test the relationship between use of mobile banking and outcomes on financial services, partial correlation was under taken between frequency on use of mobile banking where 39.4% had indicates daily use, 43% use at least once per week and 16.8 % use mobile banking at least once per month against the four outcomes listed in table 2.

Table 2: Partial correlation between frequency on use of mobile banking and outcomes on financial services

Variables	correlation coefficient	sign
Independent variable		
Frequency on use of mobile banking		
Dependent variables		
Reduction in costs of doing business	0.692	0.032*
Convenient cash transactions	0.474	0.058
Makes banking easy	0.678	0.034*
Access to wide range of financial services	0.798	0.021*
N=152		

***Correlation is significant at 0.01 level (2 tailed)*
** Correlation is significant at 0.05 level (2 tailed)*

From table 2 above it indicates a significant correlation between frequent use of mobile banking and reduction in cost of doing business, ease of banking and access to wide range of financial services. The findings showed that significant number of respondents have befitted by migrating to mobile banking to meet their financial needs of their businesses. CBK (2021a) titled FinAccess Household Survey reported that in Kenya there is increased usage on mobile money on daily and weekly basis and a decline in monthly usage

Influence of agency banking on access to financial services among Small and Medium Sized Enterprises in Kariobangi Light Industries, Nairobi County.

The second objective of this study was to find out the influence of agency banking on access to financial services by the SMEs within the study area. Unlike mobile banking where the respondents were operating the financial transactions directly using the mobile phones with the bank accounts, agency banking involves depositing and withdrawals from a bank account through the various bank agents. Susan (2016) observed that a significant number of commercial banks in Kenya have licensed several bank agents that operate outside of the banks akin to safaricom mpesa agents. These commercial bank agents can open a bank account for a client, they accepts deposits into bank accounts, facilitate withdrawals, check account balances.

Table 3: Respondents perception on the usefulness of agency banking on access to financial services

Effect	Not use full	Least use full	Moderate use full	Use full	Very useful
Reduces costs of doing business	15(9.7%)	19(12.3%)	47(30.3%)	21(13.0%)	22(14.2%)
Facilitates convenient cash transactions	19(12.3%)	30(19.3%)	59(38.1%)	38(24.5%)	9(5.8%)
Makes banking easy	32(20.6%)	39(25.2%)	35(22.6%)	31(20.0%)	18(11.6%)
Allows access to wide range of financial services	20(12.9%)	38(24.5)	57(36.8%)	23(14.8%)	17(11.0%)

From table 3 above 57% of the respondents indicated that agency banking was moderately to very useful to them in accessing financial services. Comparing this with mobile banking it can be observed that the later was found to be more preferred mode of obtaining financial services. When Central bank requested banks not to charge their customers when they withdraw cash from their bank accounts into their mobile wallets, a significant account holders moved away from agency banking in favour of mobile banking. This is captured in the CBK Annual report that reported customer preference of automated and mobile centric financial products (CBK, 2021b).

In order to establish if agency banking had any significant influence on utilization financial services a partial correlation was carried out, where frequency of use of agency banking against the four aforementioned outcomes of usage of financial services indicated in table 3 above. The respondents reported that 18.6% use agency banking daily, 30.2% reported using agency banking at least one per week and 51.2% reported to use it at least once in a month.

Table 4: Partial correlation between frequency on use of agency banking and outcomes on financial services

Variables	correlation coefficient	sign
Independent variable		
Frequency on use of agency banking		
Dependent variables		
Reduction in costs of doing business	0.211	0.011**
Convenient cash transactions	0.329	0.009*
Makes banking easy	0.180	0.049*
Access to wide range of financial services	0.261	0.038*
N=155		

***Correlation is significant at 0.01 level (2 tailed)*
** Correlation is significant at 0.05 level (2 tailed)*

The table 4 above indicates that there is a weak correlation between use of agency banking and the four outcomes of financial services. The only significant outcomes were convenience in cash transactions and access to wide range of financial services. Agency banking are primarily used by most business owners to open bank accounts as reported Central Bank of Kenya in its 2015 report. That most banks have relegated account opening and deposits of less than Ksh 50,000 to bank agents who operate outside the bank premises. Equity bank for example has licensed 42,000 bank agents operating countrywide ensuring basic financial services are available (Equity Bank, 2019).

Conclusion

The findings of the study have indicated that SMEs especially in an urban setting have embraced the various technological innovations in the digital money ecosystems. This is supported by the robust mobile money and telecommunication and communication infrastructure within the Kenyan business environment. This has enabled widespread adoption of these technological innovations that have enhanced financial inclusion among the SMEs community. It can be concluded also that emerging technological innovations has boasted financial inclusion within the SMEs sector in Kenya. It is further concluded that the SME sector in Kenya is becoming resilient and growing with an average of 10 years in operation with similarly an average of 12 employees. Significant numbers of businesses within the SMEs are largely in the trade and supplies, whilst manufacturing is the least represented.

Recommendations for Policy

Financial inclusion can be deepened by further enhancing diversification of money payment platforms against the current situation where one dominant player mainly safaricom platforms is the dominant player. Interoperability should be enhanced so as to give businesses owners the ability to send or receive money from multiple platforms seamlessly.

Suggestions for Further Research

There is need to establish the cost effectiveness of the use of mobile money payment platforms on the extent to which business operators have managed to separate personal finances from business finances. This will help answer whether these platforms have increased appetite for expenditures outside the business transactions or not. Furthermore there is need to compare the cost of credit from the traditional credit sources against those source from mobile money payment platforms.

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