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MOBILE BANKING SERVICES AND FINANCIAL INCLUSION IN TAITA TAVETA COUNTY KENYA

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ABSTRACT

Purpose: The study sought to assess the impact of mobile banking services and financial inclusion in Taita Taveta County Kenya. The study's goal was to analyze the impact of account information access, transactional, investment, and support services on financial inclusion in Taita Taveta County.

Methodology: The study used the Technology Acceptance Model, Diffusion of Innovation, Financial Intermediation, and Silber's Constraint Theory of Innovation. The study used a descriptive research approach. According to the Ministry of Finance and Economic Planning's 2020 report, the target population comprises all 11,386 licensed businesses in Taita Taveta county. The study's sample will be gathered from companies and other stakeholders through a stratified random sampling approach as well as convenience sampling. To collect primary data, semi-structured questionnaires will be employed, which will be presented in person. The data was analyzed using SPSS Version 23.0.

Findings: According to the study results, the vast majority of respondents were aware of financial inclusion. The study discovered a positive and statistically significant association between access to account information and financial inclusion of registered firms in Taita Taveta County (r = 0.341, p 0.05). This implied that greater access to account information would lead to greater financial inclusion of firms in Taita Taveta County. The study also discovered a favorable and statistically significant association between mobile transactional services and business financial inclusion in Taita Taveta County (r = 0.426, p 0.05). As a result, a rise in

mobile transactional services will result in greater financial inclusion of the county's businesses. The data also revealed a favorable and significant link between financial investment mobile services and business financial inclusion in Taita Taveta County (r = 0.512, p 0.05). In Taita Taveta County, there was likewise a positive and significant link between financial assistance mobile services and business financial inclusion (r =.755, p.01). From the study, the researcher concluded that more customers are attracted by the option of getting loans from banks through the phone. Further, more customers were attracted to paperless banking as it eased their record keeping practices on bank transactions.

Unique contribution to theory, practice and policy: The researcher recommended that banks need to establish proper policies that will help them improve on financial inclusion in the rural places in Kenya.

Key Words: *Account Information Access Services, Transactional Services, Financial Investment Services, Financial Support Services and Financial Inclusion*

Background of the Study

Financial inclusion refers to the mobility of cash-related services as well as the affordable provision of economic services like banking and insurance to large sectors of society's poor and low-income workers (Demirguc, 2008). Seven of the seventeen Sustainable Development Goals have been highlighted as being made possible by financial inclusion. Since 2010, more than 55 countries have agreed to establish a national plan for financial inclusion. Countries such as Mexico, which issued a presidential decree establishing a council tasked with uniting diverse groups fighting for financial inclusion, have taken aggressive measures. Colombia, on the other hand, established the Financial Inclusion Committee, which will oversee efforts by the organization designed to promote unbanked Colombians to use financial services (IMF report, 2020).

By creating the National Mission on Financial Inclusion, India chose a new strategy. Its mission includes providing all households with transaction accounts. Other important Mission objectives include financial inclusion, microinsurance, and pensions. Similar committees exist in Tanzania, Madagascar, Paraguay, Peru, Namibia, and Nigeria (World Bank, 2018). Thus, the study focuses on the role of account information access services in enhancing financial inclusion among licensed businesses, the role of transactional services in enhancing financial inclusion, how investments services have increased convenience in financial inclusion, and how financial support services have helped to enhance financial inclusion in Taita Taveta County, Kenya. Mobile banking can be done through any cellular device. Where a computer is used to log into a website so as to make a transaction, that is referred to as online banking. It is a form of mobile banking (Aldammagh, Abdeljawad & Obaid, 2021).

Financial investment services, account information access services, transactional services, and financial support services are examples of mobile banking services. These components constitute the foundation of the mobile banking system. Transaction services have improved as a result of easier access to cash, saving time and money. Because it integrates with the mobile device

security systems, several applications have enabled the downloading of statements, ensuring security. On the other hand, ATMs have been installed in various locations to allow clients to obtain cash in real time without the requirement for teller services. Customer complaints have been reduced, and customer care services have been launched, allowing customers to receive services in real time. Customers have rarely visited banks as a result of this form of link between them and the institutions. Furthermore, mobile phones have enabled real-time updating of such programs, servicing a diverse set of customers. Low-income people, particularly those in the interior, have reaped significant benefits (Oloo, 2014).

Statement of the Problem

Mobile banking helps users and clients to perform different transactions, which may differ depending on the service provider. Recently, it has become more convenient due to affordability of cellular mobile applications. Almost every individual owns a cellular device that would enable them perform transaction. This has made it easy for business persons as they are able to perform their operations effectively. Other users are capable of checking their balances, perform transactions and enjoy prepaid services without having to visit their institutions physically (Geebren, Jabbar & Luo, 2021). This have boosted business performance due to time saving. Mobile banking is a more preferred because it is not prone to hacking as compared to internet banking. Since online banking use websites, suspicious links are easily sent to such websites and a customer may be tempted to click such links causing leading to unauthorized access into their accounts. Paypal is a n example of internet banking where you can easily log in into their website, log in and perform transaction. The banking transaction must be carried out over the internet through the financial institution under a individual profile by use of a personal computer. In mobile banking, services are enabled by use of cellular device to perform transactions. (Jebarajakirthy & Shankar, 2021). A customer is able to enjoy mobile banking services from one definite device preferably a smartphone or tablet. A smartphone has a simcard which has a mobile number registered with the respective bank account. This series gives mobile banking a higher bargaining power compared to other methods such as internet banking where banking is conducted using any devices connected to the internet. The devices could be a tablet, smartphone, laptop or desktop computer thereby enabling fast growth of the economy in countries that have comprised these practices. Mobile banking have been embraced in Western nations by high income earners, middle-class and low income earners. By so doing, such nations have high standards of living and high GDP compared to others.

In Africa, financial inclusion is generally poor (Koomson & Danquah, 2021). In poor rural areas, where the bulk of the financially excluded live, income-related concerns and barriers to formal financial institutions drive financial exclusion. Most income-related challenges resulted in financial exclusion, according to the findings of a Fin Access (2019) study in Kenya. Despite these gains, the use of formal financial services in cities has remained nearly double that of rural areas over the last decade (Fin Access 2018). Delays in modifying financial inclusion programs have resulted in a strategic mismatch between firm output and market demand (Etim, 2017). However, according to the Taita Taveta County Government (2018), despite the majority of businesses focusing on small-scale businesses such as shops, farms and dairy keeping, these businesses only account for 0.5 percent of ventures in innovative financial services that could have increased financial inclusion. Mobile money, agency banking, ATMs, and online banking

have made receiving and sending cash as well as paying simpler (Kleijnen, Ruyter &Wetzels, 2018). Several studies on banking technology and financial inclusion have been conducted. Sukhbir and Yogita (2018); Mago and Chitokwindo (2018); Sukhbir and Yogita (2018); Sukhbir and Yogita (2018). The studies did not demonstrate how mobile and internet banking would promote financial inclusivity in such rural areas for sustainable development. They further targeted specific enterprises as opposed to our approach of doing the research in Taita Taveta County. They also ignored technology advances employed by banks in Taita Taveta County, Kenya. In 2020, the Ministry of Finance and Economic Planning expects this study to include 11,386 licensed businesses in Taita Taveta County.

Objectives of the Study

i. To assess the impact of account information access services on financial inclusion in Taita Taveta County, Kenya.
ii. To investigate the impact of transactional services on financial inclusion in Taita Taveta County, Kenya.
iii. To assess the impact of financial investment services on financial inclusion in Taita Taveta County, Kenya.
iv. To assess the impact of financial support services on financial inclusion in Taita Taveta County, Kenya.

LITERATURE REVIEW

Theoretical Review

The Theory of Technology Acceptance Model (TAM)

Theory of Technology Acceptance Model (TAM) was established by Fred Davis in the year 1989. TAM primarily describers users preference on acceptance of information systems. Davis cited that for a user to embrace any information system, the key influencers are perceived ease of use and perceived usefulness. Further research was carried out using applications such as spreadsheet, email, word processor and graphics. It came out clear that TAM was a key measure on technology adoption based on attitude by users (Stănescu & Romașcanu, 2021). When a new innovation is presented to the customers, there are a number of factors that determine hw they will accept and use it. These factors are explained by these theory. They include the expected convenience of the technology, which comes with how a customer feels about using a given application and the ease of navigation (Davis, 1989). These two elements are regarded to be the most important in determining whether or not to adopt and utilize a new technology, and they are impacted by a variety of factors including security concerns, cost, comfort, and satisfaction (Lu, Yu, Liu & Yao, 2003). The client's attitude toward using the framework, and, ultimately, the framework's actual usage, are all impacted by perceived ease (Viehland & Leong, 2007).Pijpers identifies external elements such as demography, management and information technology expertise, manager personality, firm characteristics, and information technology features that Davis did not (1986). As with any theory, the TAM has its skeptics. According to Chuttur (2009) and Shroff, Deneen, and Ng (2011), the model is bound by theoretical assumptions and practical

efficacy, and hence lacks the necessary characteristics to be a viable theory for information management research.

Financial Intermediation Theory

Financial intermediation refers to the practice of depositing excess funds with financial institutions, which then advance the funds to elements with scarce units (Ndebbio, 2004). Financial intermediaries may be recognized in four ways, according to Bisignano (1992). One of their most essential duties or deposits is counted for a specific amount that has nothing to do with how various investments perform. Second, deposits are usually much shorter term than their assets. Finally, many of their obligations are relatively liquid and can be wiped on demand, whereas their duties and assets are typically not transferable to third parties. The extent to which monetary institutions bring shortage and excess spending units together is referred to as money related intermediation (Ndebbio, 2004). Why do financial experts first lend to banks, who then lend to borrowers, rather than lending directly to borrowers, is a critical question that hypotheses seek to explain. Controversies outline how banks can effectively screen borrowers and, as a result, take the role of designated observers (Diamond, 1984). Reduced checking costs, as Diamond explains, are a source of this comparable favored viewpoint. Delegates, he claims, provide advantages by granting optional budgetary resources for the purchase of necessary money-related resources.

Given the nature of the theory in explaining financial inclusion, it will be helpful to this study in guiding and laying a basis on which financial inclusion will be viewed and measured from. Further, the theory's assumptions will be key in understanding about financial intermediation and how it affects financial inclusion within banks. Financial inclusion in the financial sector is determined by financial intermediation, which is defined as financial inclusion in institutions. This theory's theoretical foundations may be used to better understand how commercial bank innovations affect financial inclusion. It has been claimed, however, that asymmetric information difficulties in financial intermediation between an originator and investors might lead to asset pooling and trenching of related liabilities, rather than just asset pooling. The more serious the problem of adverse selection is, the more value may be produced by issuing trenched asset-backed securities. In the absence of financial middlemen, educated investors can create coalitions and profit from financial market "insider" trading (of the capital for consumption good). The coalition's trading strategy is set in such a manner that prices do not completely betray the condition of nature to uneducated investors, allowing knowledgeable investors to profit from their knowledge.

Decomposed Theory of Planned Behavior

Decomposed Theory of Planned Behavior (DTPB) was formulated by Taylor and Todd in the year 1995 (Zaman, Zahid, Habibullah & Din, 2021). Banks operate in a vigorous environment where they are expected to formulate strategies that would enhance a competitive advantage. Such strategies include online transaction and information sharing between customers by use of mobile banking. In this scenario, a customer is able to withdraw to remit money in real time without having to visit the facility manually. Prepayments have also been enabled and employees access salary advances and are able to plan well for their finances. This theory explains the character towards use of technology. It discusses concepts such as norms, attitude and perceived

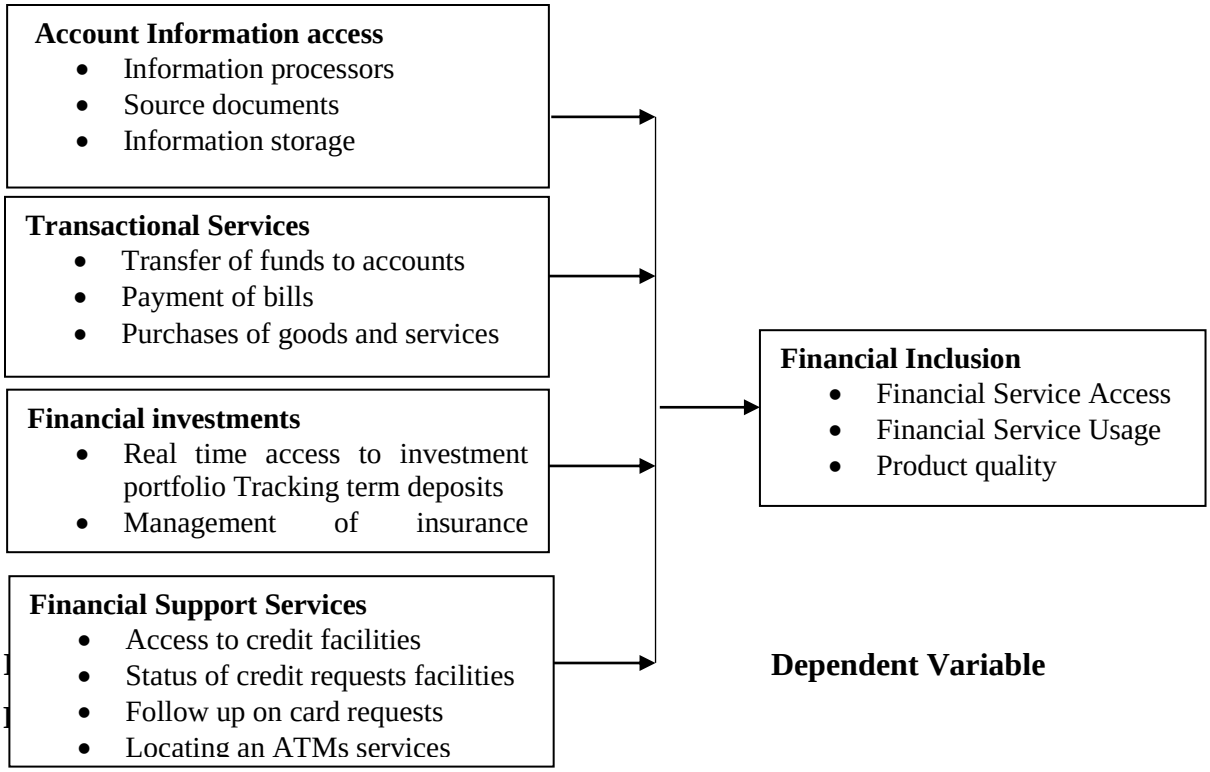
behavioral control (Maryam, Ahmad, Aslam & Farooq, 2021). DTPB is based on assumption that customers are always rational when deciding on the choice of technology to use and their intentions are purely from the information they acquire. This means they are simply influenced by the concept of attitude, subjective norms and perceived behavioral controls. A group of people who are extravagant tend to influence each other and find it a norm in doing the same (Kanimozhi & Selverani, 2019). The ability to change to remain dynamic is being increased by technology advanced by various competitors in Fintech that brings the perceived power to improve. However, this depends on motivation and ability. That is the reason some banks are more advanced compared to others in terms of customer service. On the other hand, customers who cannot afford a mobile device or are illiterate to operate tend to use the traditional means due to inability to operate the gadgets (Ho, Wu, Lee & Pham, 2020). This theory has various limitations in that it assumes the person with resources and opportunities to prosperous in doing the preferred behavior in spite of their intentions. In addition, it does not take into account of other variables such as fear, moods, past experience or threat. DTPB is further criticized on its sufficiency. Subjective norms, attitude proposition and perception of behavioral control are sufficient to forecast behavior and intentions. Banks can use this metric and lead customers' needs and improve the quality of service (Ayudya & Wibowo, 2018).

The unified theory of acceptance and use of technology (UTAUT)

Unified Theory of Acceptance and use of Technology (UTAUT) was developed by Venkatesh et al. in the year 2003. This theory integrated the key parameters of behavioral intention and use. Literature was reviewed to draw conclusions from the similarities and differences among technology acceptance theories originating from IS management, social psychology and behavioral psychology. UTAUT have been used to examine the human computer relations. It has incorporated other models such as Technology Acceptance Model (TAM), Innovation Diffusion Theory (IDT) and Theory of Planned Behavioral (TPB). In this theory four key elements that define UTAUT include performance expectancy, facilitating conditions, social influence and effort expectancy (Dwivedi, Rana, Tamilmani & Raman, 2020). Performance expectancy is defined as *"the degree to which an individual believes that using the system will help him or her to attain gains in job performance"* (Venkatesh et al.,). This concept is based on models named above and it's the most powerful analyst of application of intention and is important in mandatory and voluntary setting. On effort expectancy, the ease of use is perceived from the same models and the impact of this construct becomes irrelevant on extended use of technology. Social influence will enhance customers perceive use of a system due to use by others. They may use not due to personal preference but as a compliance requirement. This may lead to an inconsistent effect that the construct shown in other studies in validation of the model. Facilitating conditions is defined as *"the degree to which an individual believes that an organization's and technical infrastructure exists to support the use of the system"* (Venkatesh et al., 2003). They have a positive impact on purpose of use but on further usage, the effect becomes insignificant. However, they have direct impact on behavior and use (Baishya & Samalia, 2020). In mobile banking sector, these constructs determine the success of any technology being instilled to customers. It may be either voluntary or mandatory. Mobile banking is a method in which social influence, performance expectancy, facilitating conditions and effort expectancy have been significant and have been highly embraced due to rapid expansion in technology globally. UTAUT assumes behavior and use are the key determinants in the embracing technology. UTAUT have been criticized in that the social influence might be mandatory and not voluntary thereby

denying the customer the preference. This has given customers a hard time to adopt to certain technological advancements which are complex (Rahi, Ghani, Alnaser & Ngah, 2018).

Conceptual Framework



Account Information Access on Financial Inclusion

Due to the lack of traditional banking services in rural regions, the rising popularity of mobile banking has forced financial service providers to reach out to clients (Jack & Suri, 2018). Silber (1975) links financial shifts to administrative actions to optimize revenue and reduce the impact of various limitations on profitability. In addition to traditional bank loans and deposits, mobile phone loans have been established to help the poor (Ngugi, 2018). For minor loans, Kenyans no longer have to fill out lengthy application papers, find a guarantor, or face extreme scrutiny due to the usage of mobile applications. Kenya was a forerunner in mobile money transfers. Safaricom's M-Pesa money transfer service has grown to become the world's most popular and recognized money transfer service since its introduction in 2007. Almost 30 million users have used the development to pay for services, acquire credit, and move money globally, according to CA statistics (2017). M-Pesa is currently accessible in Albania, Egypt, Romania, Lesotho, and Tanzania, among other places. Kenya's mobile banking spread has been affected by a lack of mobile interoperability, which has prevented money transfers between customers of several networks service providers within the country. It was often excessively time consuming and expensive. Competitors like Airtel have complained about Safaricom's quality and market domination, and the government has been pressed to ensure that no one has an edge. Financial services have altered as a result of technological advancements, particularly mobile phones, which have aided the poor in new ways. In a study by Demirgüc et al. (2014), 14% of the SSA

population were using or had mobile money accounts as compared to the 2% of people that had them worldwide. This access to mobile banking has enabled the low income earners to broaden their base in financial platforms and be able to access bank services. Further, mobile banking technology has widened the markets in SSA and enabled the persons in rural places have access to quality products from different markets in the region.

Transactional Services on Financial Inclusion

According to the Central Bank of Kenya's (2017) Bank Supervision Report, the Kenyan banking system was robust in the face of volatility in 2017, which included interest rate limitations, severe weather, and a lengthy electioneering season. Gross loans and advances in the industry fell 5.68 percent in December 2017, from KSh.2.29 trillion at the end of 2016 to KSh.2.16 trillion at the end of 2017. From Ksh.3.7 trillion in December 2016 to Ksh.4.0 trillion in December 2017, net assets increased by 8.1 percent. Ksh.2.62 trillion in December 2016 to Ksh.2.90 trillion in December 2017. The increase might be attributed to commercial banks mobilizing additional deposits via online trading platforms. Earnings before taxes fell 9.6 percent from Ksh147.4 billion in 2016 to Ksh133.2 billion in 2017. Profitability declined as a result of lower income and lower costs. The banking sector's revenue declined 3.12% in 2017, while costs fell 0.5%. Rogers (1962) contends that governments collaborate to spread innovation to gain a competitive edge, lower transaction costs, and protect tactical points. Further, as reported in the Central Bank of Kenya's (2017) report on Bank Supervision, the Kenyan banking system was robust in the face of volatility in 2017, which included interest rate limitations, severe weather, and a long electioneering season. Gross loans and advances in the sector fell by 5.68 percent in December 2017, from KSh.2.29 trillion in 2016 to KSh.2.16 trillion in 2017. In addition to reduced cash "leakage" and corruption, M-Pesa users enjoy higher operational efficiency, less paperwork, improved transparency and accountability, increased user independence and self-sufficiency. Less cash handling and security costs, less manpower and better employee utilization are all claimed by mobile money users. Kenya has established itself as a friendly and fruitful ground for mobile money growth. The government's support for the mobile money industry, along with the country's still underserved market, has created a tremendous potential and friendly climate for service providers and ICT companies. According to the World Bank, ICT (including mobile money) has been Kenya's main economic engine over the last decade.

Financial Investments on Financial Inclusion

According to Al-Jabri (2019), advances in information technology have transformed many organizations' everyday operations. The current technological advancement has resulted in the growth of mobile and internet banking in the banking business. As a result, commercial banks and financial institutions have undergone radical transformations. Internet and mobile banking enable financial institutions to provide services to customers through the internet and mobile devices. Customers may now easily access banking services and other benefits. M banking also allows for quicker and less expensive money transfers, which boosts business and allows many unbanked individuals in poor nations to get loans (Maimbo, 2018). The ongoing development of new financial products, services, and procedures by firms to response to a changing economic environment. Financial innovation is important to any telecoms firm's financial success. Like any

other economic activity, it begins with the expectation of financial gain through a cost-benefit analysis. The invention enables cost reductions, revenue growth, or a mix of the two. Exogenous technological innovation, in particular, provides opportunities for cost savings on the cost-cutting side (Mathenge, 2019). Innovation has come a long way, and it has been critical in enhancing the financial industry's service delivery methods. Customers no longer have to wait in line for cash deposits, cash withdrawals, and other financial activities in banking halls (Anyango, Kathuo & Rotich, 2015). The ease with which these persons may now use their ATM cards or go online from the comfort of their own homes enables them to do so whenever it is convenient for them. Because cellular technology is rapidly evolving, most financial institutions are seeking for new ways to collaborate with mobile phone providers to better serve their consumers (Arora, Nyangosi & Sing, 2019). Paying for products and services, purchasing tickets, and sending money to friends and family are all done using mobile phones. Mobile phone transactions climbed by 24.7 percent to KSh2.4 trillion ($26.4 trillion) in 2014, up from KSh1.9 trillion ($20.9 trillion) the previous year. Safaricom M-pesa and Airtel Money compete in the market of power payments in addition to delivering mobile phone-based financing options that allow consumers to save and borrow modest amounts. Kenya has an 83.9 percent cellular penetration rate in June 2015. Using a mobile phone to access, monitor, and track bank accounts is one of the main reasons (CBK Report, 2019). Kenya's financial sector is well-developed and solid due to the introduction of a big credit-reference agency in 2010. Despite recent increases in lending, the banking industry has not completely enabled economic asset assignment (CBK Report, 2015). The CBK oversaw 43 commercial banks and 35 microfinance organizations as of June 30, 2015.

Financial Support Services on Financial Inclusion

Financial aid services relate to the terms and circumstances of a loan. The loan type, loan number, and loan terms all reflect this. There are many microfinance institutions in the United States. The most common forms of loans include business, asset, emergency, and supplementary loans. According to the FDIC, MFIs will allow a customer to take out several loans as long as their resources are adequate and the group agrees to guarantee the loan. These loan terms include the amount of savings required per loan, the amount of interest paid per loan, the frequency of repayment, and the repayment period. It also includes the amount of funding one can receive after successfully repaying one loan. The study sought to discover what existing research says about the relationship between financial assistance services and women-owned businesses' financial performance. Mobile banking services are rapidly being used by individuals and companies. However, data indicate that usage of business-to-business and business-to-consumer communications is increasing. Industry predictions indicate that the total number of mobile subscribers will increase from 24.6 million in 2010 to 33.2 million by the end of 2014. M-PESA is a game-changer in the money transfer industry, easily outperforming its predecessors. Users assert that it is quicker, more affordable, more dependable, and safer, and that a shutdown would have serious consequences for them. Lenders may now offer loans immediately thanks to cell phones, identity-linked digital footprints, automated credit rating, and agent networks (Gubbins & Totolo, 2018). Loan amounts from mobile banking were used to determine mobile loans. Digital lending, according to Chakraborty (2018), saves a lot of money in terms of manpower, fixed assets, and routine activities. To begin with, technology and data processing; today's

technology is very inexpensive, and global data processing services are all the rage. As a result, dealing with several customers at once is simple. A borrower can acquire a loan instantaneously in a day or two if their information is collected, validated, and disbursed quickly. The multilayer network enables various organizations and channels to join together, resulting in a large network of institutions expanding simultaneously. The fourth factor is customer satisfaction; a client who works with a technologically advanced and efficient firm receives outstanding service and is delighted with the results in such a short period of time.

Summary of Reviewed Literature

According to the research that have been reviewed, financial inclusion and access are having the most impact by boosting financial technology development and reducing wage disparities. Further, the research that has been conducted has proved that the different kinds of digital financial services give the speed, security, transparency, and cost efficiency that the banking industry demands. Rogers (2003) asserts that technology is just a value relation strategy that eliminates uncertainty in the cause-effect relationships necessary to achieve a desired goal. Four key components form the theory of innovations. These include inventions, modes of communication, time, and the social structure. He goes on to say that an innovation is any notion, practice, or endeavor that a person or other unit of adoption perceives as distinctive, regardless of its period of origin. Businesses that aren't as successful in their area are renowned for their ingenuity. Furthermore, their deteriorating profitability, which might be due to external competition or government regulation, has put pressure on these enterprises to modernize in order to improve profitability. This is consistent with Silber's contention that investing in innovation is a well-considered response to competitive disadvantage, resulting in increased profitability and performance (Silber, 1983).

Nyambariga (2013), Terfa (2015), Muiruri and Ngari (2014), Njenga, Kiragu, and Opiyo (2015), as well as Muiruri and Ngari (2014), conducted research on financial innovations and bank performance (2014). In the banking industry, Akhisar, Tunay, and Tunay (2015), Monyoncho (2015), and Ngungi (2013) explored the link between electronic banking and bank performance. Mbutor and Uba (2013) looked at the relationship between financial inclusion and monetary policy, while Dabla-Norris, Yan, and Filiz (2015) looked into several facets of it.It is evident, however, that the empirical data that has been reviewed places a stronger focus on the quantity of agency banking agents in the industry. Credit penetration and financial inclusion are two important goals. Mobile banking, including transactional mobile banking, are becoming increasingly popular. Due to the fact that online banking transactions are in addition to financial innovations and commercial bank performance, there is a vacuum in the empirical analysis of internet banking.

Research Gap

Globally and locally, financial inclusion is being studied. Both Mago & Chitokwindo (2017) and Ishengoma (2017) explored the influence of mobile savings on financial inclusion in Zimbabwe. In Nigeria, West Africa, Etim (2014) studied the impact of mobile banking and mobile money on financial inclusion. The financial regulations and economic environment in Kenya make it difficult to implement the insights from other nations' research on mobile banking and financial inclusion. As a consequence, the nation is divided. Afande and Mbugua (2018) evaluated agent

banking services in Nyeri Town, while Waihenya (2018) examined the influence of agent banking on monetary inclusion in Kenya. Studies did not examine mobile account information, transactions or support services. As a result, the country's degree of mobile banking financial inclusion is unclear. As a consequence, this study examines how mobile banking services affect financial inclusion in Taita Taveta County.

RESEARCH METHODOLOGY

The study adopted a descriptive research design and all 11,386 licensed small scale traders in Taita Taveta County and distributed across four sub counties (Voi, Taveta, Wundanyi and Mwatate).Yamane Sampling formula was employed to develop a sample of 386 traders. Primary data in the study was collected via semi-structured questionnaires. Inferential and descriptive statistics was used to analyze data. Results of the analysis were presented by use of tables and figures. The study used the following regression model:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where Y represents Financial Inclusion, α represents constant, β_1, β_2, β_3 and β_4 are coefficients of independent variables, X_1 represents Access to Account Information, X_2 represents Transaction services, X_3 represents Financial Investments, X_4 represents Financial Support Service and ε represents Random error

Results

The study administered 373 questionnaires where 347 questionnaires were fully responded to and returned. This accounted for a response rate of 76%, which is considered appropriate for the study, according to the data. Mugenda (2008) agrees suggesting that a response rate of 50% or above is sufficient for the study

Descriptive Findings and Analysis

Descriptive Statistics

Descriptive statistics were adopted in the study as the statistics enabled the researcher to describe the distribution of measures on the items contained in the variables. Both means and standard deviation were adopted as the descriptive statistics in the current study. In developing the descriptive statistics, the researcher first rated the responses using a scale of 1-5 and then presenting the average means and standard deviation per each of the statement. In the questionnaire, respondents were presented with statements on each variable and were requested to rate the statements in a scale of 1-5 where 5= Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree and 1= Strongly Disagree.

Account Information Access and Financial Inclusion

Basic data qualities, such as the mean and standard deviation, are discussed in this portion of the book. Detailed discussion of the findings will be provided in the next chapters. Table 1 presents the results of the research.

Table 1: Account information access descriptive statistics

	N	Mean	Std. Deviation
People know and easily access their account balances	347	3.70	.646
Many people have multiple bank accounts	347	3.69	.635
I can easily access my loan statement and know my balance	347	3.50	.615
It is easy to track loan repayments and be up to date	347	3.51	.586
Checking my account balance is easy	347	3.52	.591
Loan statements are quick to obtain through the phone	347	3.52	.624
Valid N (listwise)	347		

According to the study findings displayed in Table 1, the majority of respondents (with a mean of 3.70 and a standard deviation of 0.646) agreed that people know and easily access their account balances. A mean of 3.69 and a standard deviation of 0.635 were found to indicate that many people had multiple bank accounts. The statement " I can easily access my loan statement and know my balance," the mean was 3.50 and the standard deviation was 0.615. This indicated that the statement was supported by the vast majority of those who responded. A mean of 3.52 points and a standard deviation of 0.624 points were reached by those who answered the survey question about whether Loan statements are quick to obtain through the phone. The respondents also agreed that checking account balance is easy, with a mean score of 3.52 and a standard deviation of 0.591 in their responses. The statement with the lowest mean (3.50) and the lowest standard deviation (0.615) was " I can easily access my loan statement and know my balance." On the whole, the respondents agreed that increased access to account information has resulted in increased financial inclusion of businesses in Taita Taveta County, which is a positive development.

Transactional Services On Enhancing Financial Inclusion

The participants in the survey were asked to show the extent to which they agreed with the stated statements on the importance of transactional services in promoting financial inclusion of small and medium-sized enterprises in Taita Taveta County.

Table 2 presents the results of the research.

Table 2: Transactional services descriptive statistics

	N	Mean	Std. Deviation
Mobile banking services are essential in financial inclusion in the county	347	3.80	.721
The business pays its bills using the mobile paybill services	347	3.70	.791
The businesses in Taita Taveta County allow for transactions using mobile phones	347	3.70	.758
The businesses in the county pay their bills using mobile money services	347	3.61	.765
Businesses in the county use phone to make bank transfers	347	3.64	.725
The businesses in the county keep records by using mobile money transactions statements	347	3.63	.707
Taita Taveta businesses have access to mobile funds centers hence increased transactions.	347	3.63	.742
Valid N (listwise)	347		

The findings displayed in table 2 show that most of the respondents agreed to the statements posed. The respondents agreed that Mobile banking services are essential in financial inclusion in the county, with a mean of 3.80 and a standard deviation of 0.721. The respondents also agreed that The business pays its bills using the mobile paybill services, with a mean of 3.70 and a standard deviation of 0.791. The statement "The businesses in Taita Taveta County allow for transactions using mobile phones," also had a mean of 3.70 and a standard deviation of 0.758. This indicated that majority of the respondents were agreed to the statement. The statement with the least mean (3.63) was, "Taita Taveta businesses have access to mobile funds centers hence increased transactions" and with a standard deviation of 0.742. Overall, the respondents were agreed that transactional services by mobiles service providers has led to increased financial inclusion of businesses in Taita Taveta County.

Financial Investment Mobile Services and Financial Inclusion

The study participants were asked to indicate their degree of agreement with statements on financial investment mobile services and company financial inclusion in Taita Taveta County. Table 3 summarizes the findings.

Table 3: Financial Investment Mobile Services Descriptive Statistics

	N	Mean	Std. Deviation
Businesses in the county are able to keep record of their bank deposits through mobile money services	347	3.99	.731
Businesses have an easy access to insurance services as a result of mobile money services	347	3.87	.738
More busineses are able to diversify their investment using mobile banking technology	347	3.66	.676
Busineses can have a realtime access to different investment portfolios	347	3.41	.637
Mobile banking allows for fast processing of payments	347	3.41	.671
Valid N (listwise)	347		

The results in table 3 show that the majority of the respondents agreed with the statements made. With a mean of 3.99 and a standard deviation of 0.731, the respondents agreed that Businesses in the county are able to keep record of their bank deposits through mobile money services. With a mean of 3.87 and a standard deviation of 0.738, the respondents also agreed that Businesses have an easy access to insurance services as a result of mobile money services. Further, with a mean of 3.66 and a std deviation of 0.676, the statement "More businesses are able to diversify their investment using mobile banking technology" was also a hit. This indicated that the statement was supported by the majority of the respondents. With a mean of 3.41 and a standard deviation of 0.671, the statement " Mobile banking allows for fast processing of payments " had the lowest mean. This value indicates that the respondents were undecided about the statement. Access to account information has led to increased financial inclusion of businesses in Taita Taveta County, according to the respondents.

Financial Support Services and Financial Inclusion

The study participants were asked to indicate their level of agreement with statements about financial support services and business financial inclusion in Taita Taveta County. The findings are summarized in Table 4.

Table 4: Financial Support Services Descriptive Statistics

	N	Mean	Std. Deviation
Many licensed businesses in the count can get status of the applied loans using mobiles	347	3.76	.611
It is easier to access banks and ATMS using the mobile phones	347	3.75	.671
Businesses are able to get responses from the bank on their questions on their bank accounts	347	3.65	.662
It is easier to manage my ATM card activities ad balance	347	3.54	.650
Mobile banking has increased access to loan facilities from banks and other financial institutions	347	3.49	.677
Valid N (listwise)	347		

The results in table 4 show that the majority of the respondents agreed with the statements made. With a mean of 3.76 and a standard deviation of 0.611, the respondents agreed with the statement, Many licensed businesses in the count can get status of the applied loans using mobiles. With a mean of 3.75 and a standard deviation of 0.671, the respondents also agreed that It is easier to access banks and ATMS using the mobile phones. The statement " Businesses are able to get responses from the bank on their questions on their bank accounts," had a mean of 3.65 and a standard deviation of 0.662. This indicated that the statement was supported by the majority of the respondents. The statement, “Mobile banking has increased access to loan facilities from banks and other financial institutions” had the least mean, 3.49 and with a standard deviation of 0.671. This mean tells that the respondents were neutral on this statement. Overall, the respondents were agreed that access to account information has led to increased financial inclusion of businesses in Taita Taveta County.

Financial Inclusion

The participants in the study were asked to rate their level of agreement with the statements made about financial inclusion of businesses in Taita Taveta County. The findings are summarized in Table 5 which can be found below.

Table 5: Financial Inclusion Descriptive Statistics

	N	Mean	Std. Deviation
The services of mobile banking are affordable	347	3.96	.585
The services of mobile banking are accessible	347	3.94	.660
Businesses are able to transact using large amounts of money using mobile banking	347	3.87	.676
Mobile money services has taken up agency banking well	347	3.83	.638
Mobile financial services are convenient to our businesses	347	3.71	.573
Valid N (listwise)	347		

From the findings displayed in table 5, the study found out that the services of mobile banking are affordable as shown by the mean of 3.96 and a standard deviation of .585. Further, the respondents agreed that the services of mobile banking are accessible with a mean of 3.94 and a standard deviation of .660. The statement "Businesses are able to transact using large amounts of money using mobile banking" as indicated with a mean of 3.87 and a standard deviation of .676. Mobile money services has taken up agency banking well had a mean of 3.83 and a standard deviation of .638 while, the statement "Mobile financial services are convenient to our businesses" had a mean of 3.7 and a stand and deviation of .573. Overall, the study respondents were agreed to the statements stated here and this was an indication of the increased financial inclusion in the county.

Inferential Statistics

Correlation Analysis

In order to determine the relationship between the dependent variable (financial inclusion) and the independent variables (Account Information Access, Transactional Services, Financial Investment Services, Financial Support Services), a multiple correlation analysis was performed. The findings are summarized in Table 6.

Table 6: Correlation

		Account Information	Transactional Services	Financial Investment	Financial Support	Financial Inclusion
Account Information	Pearson Correlation	1				
	Sig. (2-tailed)					
Transactional Services	Pearson Correlation	.118*	1			
	Sig. (2-tailed)	.028				
Financial Investment	Pearson Correlation	.084	-.049	1		
	Sig. (2-tailed)	.120	.365			
Financial Support	Pearson Correlation	.043	.037	.018	1	
	Sig. (2-tailed)	.426	.494	.736		
Financial Inclusion	Pearson Correlation	.341*	.426*	.512*	.553*	1
	Sig. (2-tailed)	.044	.018	.028	.006	
	N	347	347	347	347	347

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

A Pearson correlation test was carried out on the data. The study established that there was a positive and statistically significant correlation between access of account information and financial inclusion of registered businesses in Taita Taveta County ($r = 0.341$, $p < 0.05$). This, implied that an increase in account information access would lead to an increase in the financial inclusion of businesses in Taita Taveta County. The study also revealed a significant positive relationship between mobile transactional services and financial inclusion of businesses in Taita Taveta County ($r = 0.426$, $p < 0.05$). Hence an increase in mobile transactional services will result in an improved financial inclusion of businesses in the county. The findings further

showed that there was a positive and significant relationship financial investment mobile services and financial inclusion of businesses in Taita Taveta County ($r = 0.512$, $p < 0.05$). There was also a positive and significant relationship between financial support mobile services and financial inclusion of businesses in Taita Taveta County ($r = .755$, $p < .01$).

Regression Analysis

The researcher aimed at understanding further the relationship between mobile banking services and financial inclusion in Taita Taveta County. Regression will help show the extent to which every independent variable can be used to predict the dependent variable and if the results are statistically significant. The researcher carried a simple regression on every variable and presents the results in the following section.

Table 7: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	3.321	.178	.	18.268	.000
	Account Information	.244	.058	.041	.766	.000
	Transaction Services	.099	.042	.126	2.367	.018
	Financial Investments	.012	.053	.012	.217	.028
	Financial Support	.052	.052	.053	.984	.026

By testing the statistical significance of each of the independent variables, we can indicate that account information, financial investments, transaction services and financial support are statistically significant at $t(345) = .766$, $t(345) = .217$, $t(345) = 2.367$ and $t(345) = .984$ respectively since $p < .05$.

From the above summary, the multiple regression equation is:

$$\mathbf{Y = 3.321 + .244X_1 + 0.099X_2 + 0.012X_3 + 0.052X_4}$$

For Account Information, there is a 0.244 increase in financial inclusion for an extra unit of Account information. Increase in an extra unit in transaction services would result to an increase in financial inclusion by 0.099. On the other hand, 0.012 increase in financial inclusion would yield to an increase in extra unit of financial investment. Finally, 0.052 increase in financial inclusion would yield an extra unit of financial support.

Conclusions

According to the survey, mobile banking has increased access to financial services offered by commercial banks in the country. This increase has consequently led to the increase of the amount of cash transacted through mobile phones. Further, through mobile banking the study noted that the banks have been able to expand their customer base and reach out to the population in the rural places that had been left out in the traditional way of banking. Further, through the provision of financial services in form of short-term quick loans has been beneficial to the businesses in Taita Taveta County, who could not previously access bank loans to increase operations of their businesses. According to the research, pay bill services have reduced client lineups, improved the bank's cash reserve ratios, and raised cash deposit ratios. Pay bill services have increased banks' reach, as many consumers now pay their debts via pay bill numbers.

Commercial banks provided thorough information on their clients' mobile payment activities, mobile bank accounts enabled users in remote locations to register accounts with commercial banks, and the linking of mobile phone payment and bank account pushed more individuals to the bank, the study found. The low maintenance expenses associated with mobile phone-based accounts, as well as the lower rates associated with mobile money transfer operations, drew additional consumers to the bank. The study concluded that credit facilities via mobile phones drew more customers to banks, that speedy processing of mobile phone credit applications drew more customers to banks, and that the lack of paperwork associated with mobile phone-based credit drew more consumers to banks. More clients have been drawn by the flexibility in the quantity of credit granted via mobile phones, as well as the flexibility in repaying mobile phone-based loans.

Recommendations

The researcher recommends application of mobile banking in making transactions due to ease of access, flexibility and friendly costs incurred. Users are able to expand their portfolios and on the other hand service providers are making profits. Wide coverage capability is a key factor that banks should consider since most of the regions have network that would enable easy running of their mobile applications necessary to perform the transactions. By improving awareness, majority of the customers would embrace this method as opposed to the traditional ones. Security of such transactions has to be enhanced to increase trust and encourage more customers to embrace the idea. Customers should be capable of accessing key information concerning their transactions in real time. Biometrics can be used by customers with devices enabling such methods for example smart phones. This would improve the security and boost customers' confidence on use of the mobile banking method. The research also revealed is a factor that commercial banks should provide full reporting on customers' mobile payment activities, mobile bank accounts should allow clients in distant places to register for commercial bank accounts, and mobile phone payment should be connected. As a result of the mobile banking account, more consumers should be drawn to the bank. Customers should be attracted to mobile phone accounts with minimal maintenance fees. Banks may reduce rates for mobile money transfer operations in order to attract more customers.

According to the results of the poll, providing credit through mobile phones may encourage more clients to use the bank's services. Mobile phone credit applications should be completed as soon

as possible, and the lack of paper work connected with mobile phone-based credit should encourage more clients to use the bank's mobile phone credit services. Flexibility in the amount of credit made available through mobile phones, as well as flexibility in the repayment of mobile phone-based loans, should encourage more customers to take use of these services. According to the study's results, it is advised that proper policies be put in place to improve financial inclusion among the unbanked in society so that they may obtain access to banking services. According to the authors, the study's results might be utilized to draft legislation that encourages more people to use mobile banking services in the future. Policy holders should also come up with policies that promote use of customer friendly applications and at affordable rates. Manufacturers should come up with user-friendly applications for mobile banking which would enhance maximum customer satisfaction. Smart phones can have a a biometric to unlock such applications to enhance maximum security. By doing this, customer loyalty will increase and more returns will be acquired in the long-run.

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