

**EFFECTS OF DIGITAL BANKING STRATEGY ON FINANCIAL
INCLUSION AMONG COMMERCIAL BANKS IN KENYA**

BY

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DECLARATION

This research project is my original work and has not been presented for the award of a degree or any other qualification in any other university.

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This research project has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

This research work is dedicated to my Daughter Nicole, for you I found the will power to pursue this. It is also dedicated to my parents, who taught me that the best kind of knowledge to have is that which is learned for its own sake.

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ABBREVIATIONS AND ACRONYMS

CBK	Central Bank of Kenya
CGAP	Consultative Group to Assist the Poor
FI	Financial Inclusion
R&D	Research and Development
SACCO	Savings and Credit Cooperative Organization
SPSS	Statistical Package of Social Sciences

ABSTRACT

Globally, digital banking strategies such as mobile, agency and online banking are heavily used by banks to ensure their positive financial outlook through increased financial inclusion ever-changing user needs and other market forces. The Kenyan banking industry has been undergoing rigorous transformation including changing customer need, innovation, technological advancements, deregulation, globalization and stiff competition. To cope with these market forces that threaten the survival, competitiveness, financial inclusivity, profitability and growth, commercial banks are implementing a number of digital banking strategies including mobile banking and online banking among others. The study researched on the effects of digital banking strategy on financial inclusion among commercial banks in Kenya. The study is based on finance-growth theory, constraint-induced financial innovation theory and transaction cost innovation theory. A descriptive survey research design was used where all the 42 commercial banks in Kenya were involved. The target population was the registered 42 commercial banks in Kenya as at 31st December 2016. The study used quantitative secondary data from CBK annual reports for 2012 – 2016. In analyzing the quantitative data, the study used descriptive statistics and regression analysis while qualitative data was analyzed using content analysis. From the findings, it was concluded that commercial banks in Kenya had adopted diverse digital banking strategies to not only ensure their sustainability but also to reach the unbanked people in Kenya. The digital banking strategies had a significant effect on financial inclusion among commercial banks in Kenya. There was a significant positive change in financial inclusion as proxied by the number of accounts, deposits value, number of outlets and customer base, over the 5-year period. The most significant digital banking strategy is mobile banking followed by ATM banking, agency banking and online banking respectively. The study recommends that there is need for the management of the commercial banks to collaborate with the telecommunication players to enhance uptake of mobile banking. The government through relevant ministry needs to continue investing in internet connectivity to increase access to online banking. The bank management should constantly review their agency policies to increase the number of agents for increased financial inclusion. The commercial banks should continue investing on the modern ATMs that allow for diverse banking services hence increasing banking of the unbanked. Having focused on the effect of digital banking strategy on financial inclusion in Kenya a similar study should be done among other financial institutions other than banks for comparison purposes and to allow for generalization of findings. A study should also be conducted on the effect challenges facing the adoption of digital banking strategies among banks in Kenya.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Over the years and especially since year 2000, tremendous change has occurred in the banking sector mostly triggered by inventions in the world of technology, financial system, legal frameworks and customer needs and preferences. Most of the big banks that used to adopt digital strategies in the past to meet the changing customer needs have either exited or rebranded; and the current bank giants are only a decade old. This reflects the role of digital strategy in ensuring firm survival, competitiveness and optimal financial performance from increased financial inclusion at the backdrop of the global financial crisis (Kimani, 2016; Anthony & Harry, 2015).

According to Korir (2014) the major impetus for digital strategies such as mobile banking and online banking has been competition, globalization, deregulation and technological advancement. The survival in this sector has been majorly driven by frequent and constant adoption of digital strategies to increase financial inclusion. With these digital strategies, banks have significantly enhanced their service quality to meet the changing needs of the customer, increased financial inclusion hence their survival and profitability. Given that adoption of such digital strategies is capital intensive, and its failure rate is very high, banks greatly struggle in designing and implementing the best suited digital strategies in their markets (Lawrence, 2010).

This study will be guided by the following theories; Finance-growth Theory, Constraint-Induced Financial Innovation Theory and Transaction Cost Theory. Finance-growth Theory advocates that money related advancement makes a beneficial situation for growth. Theories additionally see the absence of access to finance as a

basic factor responsible for tenacious wage disparity and slower development (Serrao *et al.*, 2012).

Constraint-Induced Financial Innovation hypothesis argues that the motivation behind boosting of firms' profits is the major drive behind embracing digital strategy. There are a few limitations (which include external limitations, for example, strategy and internal limitations, for example, internal administration and leadership style) during the process of ensuring benefit maximization in a firm (Fitzpatrick *et al.*, 2017). Transaction Cost Theory suggests that the digital strategy is predominantly driven by the firm's need to reduce transaction cost. Therefore, the reduction in transaction cost further stimulates the ripple effect of adopting a given digital strategy recognized in terms of improved service quality offered in this case increased financial inclusion (Anthony & Harry, 2015). These theories are relevant in that financial innovation in the Kenyan banks have adopted technology as the main form of innovation and also the manager of the listed banks operate on behalf of the real owners.

According to Weru (2010), the banking system in Kenya has not been left behind in all these inventions and innovations. Majority of the financial innovations adopted by Kenyan banks are the use of debit cards and credit cards. These have registered continuous growth from the late 1990s. This has ensured the use of electronic money, which is a shift from the physical cash payments made in small value but also deposits from banks through holding electronic money balances (Jepkorir, 2011).

There is also the utilization of internet and mobile banking. According to Kimenyi and Ndung'u (2009), commercial banks use mobiles phones as their platform for financial services. It is a service of mobile banking that allows customers access to bank services and products using their mobile phone. This has significantly reduced the available amount of money which individuals used to have at hand at any given time, thereby affecting the demand for money.

1.1.1 Digital Banking Strategy

Digital banking strategy can be described in terms of introducing new instruments of finance, services or practice, introduction of new uses for money, discovering new channels of funds, introducing new ways of handling daily operations, or coming up with a new organization, while all these endeavors are becoming part of existing financial institutions, and the emergence of phenomenal growth of new institutions of finances and new markets.

Digital banking strategies enable banks to advance their ability to beat competition, lower their affinity to risk and manage risk better in case it happens while at the same time responding to the needs of their clients satisfactorily and respond to the market changes (Laeven & Levin, 2010). Lawrence (2010) posits that digital banking strategies are concerned with designing, developing, and implementing of new ideas and processes, where they result in the creation of new solutions with regard to existing financial problems. Financial innovation are new products that significantly brings down costs, averts risks, or presents a better product that is more satisfying to the end user in the financial system (Fitzpatrick, Reichmeier & Dowell, 2014).

A number of measures of digital banking strategy have been applied by different authors. Loof (2000) measured digital banking strategy as a function of the value of transactions made using the digital platforms i.e. online banking and mobile banking. On the other hand, Mabrouk and Mamoghli (2010) measured digital banking strategy as a ratio of revenue generated upon adoption of each financial innovation to operating profits during the study period. Similarly, Sorescu (2011) measured digital banking strategy as the ratio of capital expenditure for each of the digital banking strategy to the firm operating profits for the given period. Mohammad (2014) differentiates between three categories of digital innovation strategies: System innovation where there is an emergence of institutions that were not there before, and are tailored to address the unmet needs.

Process innovation, which brings into existence new technologies for provision of financial services, and Product innovation, which addresses the supply side of the already created digital products. Therefore, governments in this chain are supposed to participate in the first type of innovation since the private sector may under-produce such innovations. Systemic innovation may eventually come up although this may take time; the process may as well be lengthy and tedious, hence, governments have a duty to nurture this growth.

1.1.2 Financial Inclusion

Financial inclusion refers to the ‘access to all, at an affordable cost, to varied financial services and products that are made available through a number of existing institutions which have the ability to sustain themselves. Efforts directed towards

financial inclusion, are meant to make sure that every household and business, without regard to their level of income has the ability to access, and make use of the necessary financial services that they require in order to enjoy a better quality life (World Bank, 2015).

KPMG (2016) established that more than two billion adults the world over are financially excluded. This means that they lack access to credit, savings, insurance and payments options including mobile money. Financially excluded individuals and households are missing out on welfare and developmental impacts derived from access to appropriate financial services. Access to micro credit enables small business owners to finance business expansion leading to larger and more profitable businesses. Access to savings options enables households to balance their income and expenditure, build borrowing capacity, create a nest egg for the proverbial rainy day and enable future household investment. Access to insurance creates planned capacity to withstand risks while access to suitable payment options results to greater efficiency of transactions. Research demonstrates that financial inclusion results to higher levels of economic growth and employment and aids in better implementation of projects that bring about development in the society.

1.1.3 Digital Banking Strategy and Financial Inclusion

Weil, Mbiti and Mwega (2012) established that the mobile phone has today evolved into a full-fledged bank service and this has become a game changer and poses a serious threat to traditional banking strategies. It has enabled real time payments that has improved the movement of cash and has revolutionized the concept of payments.

As banking continuously evolves and bankers introduce new strategies to take advantage of these new technologies, it is important that these two developments converge to ensure that the customer enjoys the best from these two otherwise separate worlds. Rutherford (2010) emphasizes the use of MPESA for informal financial services. The ease and low cost of MPESA have facilitated informal borrowing, perhaps even boosting it because it is so reliable. Further Rutherford (2010) contends that since informal finance has received a major boost in its being effective, it has a bright future especially in Kenya. Wilson, Harper and Griffith (2010) also observe informal savings groups using MPESA for transfers.

Tufano (2012) ascertained that financial innovations reduce the immobility of funds with regard to time and space among markets and also allows the sharing of risk among the transacting individuals. Agency problems are also taken care of and information is equally provided among the parties in a contract e.g. where common stocks are concerned, and where some parties are able to solicit some information from specific companies while the same is not made publicly available to both the owners and the managers of such a firm. They also significantly reduce the costs associated with the search and markets which are mainly associated with ATMs, smart cards and ACH technologies. They are deemed as convenient vehicles of banking and they also bring down costs of services by decongesting the traffic at tellers' windows

1.1.4 Commercial Banks in Kenya

In the last decade, Kenya has implemented numerous innovative finance solutions that are transforming its financial, economic and social landscape. The performance of the commercial banks is under scrutiny of several stakeholders and the public. Their performance is used by the stakeholders and the public to make key decisions and give an indication of the state of the economy. In an effort to increase the stakeholders' investment confidence, firm reputation and value to investor, the commercial banks have embraced financial innovation as a means of driving their performance (CBK, 2016).

The high costs of accessing financial services (monetary and time-wise); and physical barriers stemming from the distance between people's homes to financial institutions' branches or financial touch points, greatly hindered access to financial services in Kenya (Financial Access Survey, 2015). The demand-side barriers to financial inclusion included; lack of income, and unemployment. It is in view of these impediments, it became necessary to reform the financial sector to enhance financial inclusion in Kenya (Waihenya, 2012). As a result of the initiatives and reforms within the banking sector, Kenyans have witnessed tremendous growth and transformation in efficiency, stability and outreach of financial services. The effects of the innovative and inclusive finance have an impact on increasing access to financial services which have conversely assisted in reducing poverty and creating employment (CBK, 2016).

In Kenya, recently there have been efforts to enhance financial sector deepening; commercial banks have over the last few years been able to reach millions of low-

income clients with greatly reduced costs of transaction. Rivalry from especially Safaricom's M-Pesa service transformed banks' strategy and are now adopting online banking and mobile phone. Despite the quick success of M-Pesa, building the platform's now 27,000-agent network involved huge up-front costs (Kenyoru, 2013).

1.2 Research Problem

Globally, digital banking strategies such as mobile, agency and online banking are heavily used by banks to ensure their positive financial outlook through increased financial inclusion ever-changing user needs and other market forces (World Bank, 2016). According to strategists like Porter (2013) digital banking strategies are important determinant of financial inclusion of a country.

The Kenyan banking industry has been undergoing rigorous transformation including changing customer need, innovation, technological advancements, deregulation, globalization and stiff competition (Central Bank of Kenya, 2016). To cope with these market forces that threaten the survival, competitiveness, financial inclusivity, profitability and growth, commercial banks are implementing a number of digital banking strategies including mobile banking and online banking among others (Kyalo, 2014).

Previous international empirical studies on digital strategy and financial inclusion reveal mixed outcomes. Franscesa and Claeys (2010) observed that banking innovations did not have a major impact on bank performance, while Batiz-Lazo and Woldesenbet (2006) and Gakure and Ngumi (2013) established that banking innovations

significantly contributed to bank performance. De Young, Lang and Nolle (2007) study ignored the antecedents to innovation inside.

Local studies also exist on digital strategies and financial inclusion. Maleto (2016) focusses on the savings and credit cooperatives in Kenya while Kimingi (2010) focuses on banks while Nyambuti (2016) focused on DTMs. Kibugo (2016) investigated on the microfinance institutions in Nakuru. There are methodological and industry contextual differences between the highlighted local and international studies and the current study where none of the highlighted studies focused on the banking sector. To bridge this knowledge gap, this study sought to answer the research question: What is the effects of digital strategy on financial inclusion among commercial banks in Kenya?

1.3 Objectives of the Study

To establish the effects of digital banking strategy on financial inclusion among commercial banks in Kenya

The specific objective was:

- i. To establish the effect of digital banking strategies on financial inclusion among commercial banks in Kenya.

1.4 Value of the Study

The findings may contribute to the advancement of theories on digital strategy and financial inclusion. The findings offer new insights on whether the current theories

are highly generalized to all industries or they effectively describe digital strategy and financial inclusion in technology driven industries like banking sector.

This study may be of great value to the policy makers in the banking industry by confirming the current digital banking strategies in place and their importance in determining the financial inclusion of the banking industry. Through the findings of the study, the policy makers may better understand emerging digital banking strategies hence informing policy formulation that in tandem with new trends to ensure financial inclusion which is a key pillar of the economic development of Kenya.

The study findings may help the management of respective banks in evaluating the importance of their digital banking strategies on financial inclusion to bolster their profitability. The banks management may gain more awareness on the importance of digital banking strategies from the link between digital banking strategies and financial inclusion in the banking industry.

Similarly, the future scholars may find the study findings value adding to their future inquest on the link between digital banking strategies and financial inclusion of the banking industry. The study therefore is a good reference point to the future researchers.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter presents the theoretical review of the study. It further discusses the determinants of financial inclusion in the banking industry. The chapter also provides the local and international empirical studies on relationship between digital strategy and financial inclusion among commercial banks. The chapter is finalized by a section on conceptual framework. The chapter entails: theoretical foundations of the study, determinants of financial inclusion and empirical studies on effect of digital banking strategies on financial inclusion.

2.2 Theoretical Foundations of the Study

The study reviewed a number of theories on the adoption of digital strategy and financial inclusion. The study is based on finance-growth theory, constraint-induced financial innovation theory and transaction cost innovation theory. A detailed explanation of each theory, with its relevance to this study is discussed in the subsequent sections.

2.2.1 Finance-growth Theory

Theories on the finance development nexus advocate that money related advancement makes a beneficial situation for growth through 'supply leading' or 'demand-following' impact. Theories additionally see the absence of access to finance as a basic factor responsible for tenacious wage disparity and slower development. In this manner, access to safe, simple and affordable finance is perceived as a pre-condition for quickening development and decreasing disparities in income and poverty which

otherwise ought to ensure equal prospects, empowers the vulnerable and socially disempowered individuals to participate better in the economy and effectively add to development and shield themselves from economic shocks (Serrao *et al.*, 2012). There are however disagreements among scholars on the role of financial systems in economic wellbeing and inclusion in the economy. Some scholars emphasize this role while others downplay it. The demand following perspective contends that the money related framework does not bring about economic growth; but rather the system just reacts to improvement in the real sector of the economy. The supply leading scholars are however opposed to this perspective.

Stolbov (2013) criticized the Finance-growth Theory by arguing that financial system like digital banking strategies plays important role but not primary role in enhancing financial inclusion. Within this framework of theorizing they firmly believed that enterprises lead finance.

2.2.2 Constraint-Induced Financial Innovation Theory

As proposed by Silber (1983) and advanced by De Young, Lang and Nolle (2007) constraint-induced financial innovation hypothesis argues that the motivation behind boosting of firms' profits is the major drive behind embracing digital strategy. There are a few limitations (which include external limitations, for example, strategy and internal limitations, for example, internal administration and leadership style) during the process of ensuring benefit maximization in a firm. The hypothesis demonstrates that organizations introduce innovations to address the constraints and burdens caused by unpredictable markets, control, operation costs and taxes. The hypothesis

additionally proposes that digital strategy is done to diminish the financial problems that diminish the company's earning capacity; consequently companies enhance the returns on capital in the light of the organizations' objectives (Fitzpatrick et al., 2017).

According to Anthony *et al.* (2015) these confinements and impediments ensure the strength of administration, as well as lessen the effectiveness of the financial organization, thus financial related establishments endeavor toward lessening these limitations and restrictions. Constraint-induced innovation hypothesis perceives digital strategy from microeconomics, so it is representative. It however stresses development in difficulty circumstances and neglects to acknowledge the role of increased advancement in liberal finance. As per Tufano (2009) people and firms innovate to go around these challenges to decrease the cost of borrowing, lessen costs and enhance venture choices. Innovation additionally tries to handle the budgetary speculation requirements through low deposits, less interest, subsequently less demand for deposits and the desire for productivity, among others. The critics of constraint-induced financial innovation theory including Foxon *et al* (2005) and Lawrence (2010) argue that apart from maximization of profits, firms exist to contribute to the social well-being of their societies, in this case enhancing financial inclusion.

2.2.3 Transaction Cost Theory

The transaction cost theory was proposed by Niehans (1989). The theory suggests that the digital strategy is predominantly driven by the firm's need to reduce transaction cost. Therefore, the reduction in transaction cost further stimulates the ripple effect of

adopting a given digital strategy recognized in terms of improved service quality offered in this case increased financial inclusion. The motive of adopting digital strategy is to reduce the transaction cost and therefore the theory explains that when well executed, digital strategy enhances financial inclusion in the banking sector (Anthony & Harry, 2015). Transaction cost theory explains the institutions financial expenditure decisions, considering the relative merits of conducting intra firm transactions in contrast to inter-firm market transactions (Black, 2002). In transaction cost theory, the unit of the analysis is the unit of activity – the transaction, with its participants. In this case, the firm has to decide whether to invest in a certain digital strategy or not, given that it is capital intensive (Bakar & Ahmad, 2010).

The critics of TCT contend that remedies drawn from this hypothesis are probably going to be wrong as well as hazardous for corporate administrators due to assumptions and rationale on which it is based. Associations are not insignificant substitutes for organizing efficient transactions when markets fall short; they have favorable circumstances for administering certain sorts of monetary exercises through a rationale that is altogether different from that of a market (Batiz-Lazo & Woldesenbet, 2006).

2.3 Determinants of financial inclusion

No single measure of financial exclusion exists. This results from people and firms utilizing diverse monetary services including investment funds, borrowings, cash exchanges and payments. Thus, a few markers are utilized at the same time to gauge the level of budgetary consideration in a nation. These range from investment

accounts at formal money related institutions to the utilization of Automated Teller Machines (ATMs), mobile banking or the utilization of debit and credit cards. The developments, for example, electronic payments and mobile banking have changed the extent of financial inclusion (World Bank, 2012).

Thoughts regarding the matter of financial inclusion led scholars to an agreement that only having an account may not be a pointer of financial inclusion. The perfect definition should assess individuals who need to get financial services yet are unable. In the event that there are claimants who qualify for credit and are denied, at that point that is an instance of exclusion. This would however raise the issue of creditworthiness or bankability, it is additionally important to look at what should be done to possibly make these claimants bankable or qualify for credit. This would require re-building of existing money related products or conveyance frameworks and tying them with the expectations and absorptive limit of the planned customer base (Ibeachu, 2010).

2.4 Digital Banking Strategies and Financial Inclusion

Financial Innovations have enhanced market combination and proficiency of global markets by introducing more extensive and more adaptable scope of instruments. This has brought about enhanced allotment of financial resources and better dispersion of portfolio risks. Additionally, substitution of direct exchange in securities for bank credits and rivalry has lessened the cost of intermediation. Tufano (2012) established that the benefits of financial innovation are: keeping away from controls and streamlining charges, decreasing exchange costs and expanding liquidity of market-

based items, lessening organization costs between administrators and investors and amongst investors and leasers, diminishing information asymmetry between corporate insiders (majority shareholders/ administrators) and outsiders (financiers, minority investors), expanding risk-sharing avenues (subsidiaries) and making capital intermediation more effective and less expensive for customers.

Banks that offer a wide range of banking services over the internet perform better than those without. Also, banking over the internet helps the community banks in enhancing their ability to earn as indicated by a higher return on equity. Also their asset quality was enhanced as it reduced the ratio of unsettled and assets that were not performing. Either way, clients are always dissatisfied if the person charged with the responding of providing particular services cannot provide them as and when they are needed. It is therefore important to have the agents trained in the field of banking for the bank to realize its objectives in the financial world (Tarazi, 2010). The use of mobile phone in banking, ATM networks and presence of branch networks positively impacted the profits and the efficiency of the banks in Saudi. The study also observed that the cost of establishing and operating one branch is huge compared to the online platforms. Further, the benefits of using an online platform included convenience, since there were less transaction costs associated with the point of service, the opening hours and access to the bank branches (Sorescu, 2011).

The antecedents of mobile banking include; reaching more clientele, raising more profits, reaching more clients especially outside the limits of the bank's branch network, enlisting more unbanked clients, and encouraging the clients to get services

outside the traditional banking halls. This, the researcher, takes to mean that, commercial banks embraced the idea of internet banking in order to scale up their operational capacity and while doing this, scale down their costs of operation and make more profits. On average internet banks are bigger, make more profits and are more efficient in operations. Further, internet banks had acquired higher quality assets and have better management that lower their expenditure on buildings and other equipment (Wambugu, 2012).

Financial exclusion is also a manifestation of social exclusion. When unbanked, people can't take an interest in social and economic exercises of the nation prompting imbalance which breeds numerous vices. Activities geared towards financial and social inclusion that can bring all to the equal financial opportunities of the nation. Aduda and Kalunda (2012), in their investigation of Financial Inclusion and Financial Sector Stability argue that it is clear from the hypothetical and empirical literature that many of the world's populace is financially excluded. The investigation features the necessity to tackle financial inclusion quickly to prevent a case of financial stability. The government's role ought to likewise be painstakingly looked at since studies have previously established that constant mediation from government has yielded more problems than good.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

In this section the method of research to be adopted is highlighted. It also discusses the research design, the study population, data collection, data analysis and the analytical model to be used to determine possible relationships among variables, as discussed in the subsequent sub-headings.

3.2 Research Design

The descriptive research design was the best suited for this study as it seeks to describe the characteristics related to digital strategy on financial inclusion among banks, estimate the level of influence of digital strategy on financial inclusion and make predictions. The design also allows use of mixed approached where qualitative and quantitative data are applied and are complementary and allows for triangulation and validation of data (Kothari, 2004).

3.3 Population

It is also an entire group of individuals, Mugenda and Mugenda (2008) it includes objects, or events having a common characteristic. The target population was the registered 42 commercial banks in Kenya as at 31st December 2016 (Central Bank of Kenya, 2016). The study adopted a census approach. Kothari postulates that when the study population is small a census approach is usually used.

3.4 Data Collection

Both secondary and primary data was used. Quantitative secondary data was from CBK annual reports for 2012 to 2016 will be used. The specific data that was collected included data on digital banking strategies. It also entailed the number of customers using different banking services offered between 2012-2016.

On the other hand, primary data was obtained through questionnaire which was responded to by top management staff from the IT, operations and accounts departments of the banks, given their critical role in the implementation of the digital strategy for financial inclusion in their respective banks. From each of the 42 banks, three senior management staff were interviewed giving the study a sample size of respondents.

3.5 Data Analysis

The study was based on quantitative data from primary and secondary data sources. Once collected, the quantitative data was entered into SPSS (Version 22) for further manipulation and analysis. Descriptive statistics was used to analyse the quantitative data. In this case the mean, standard deviation, percentage and frequencies were used to show the trend of the results over the five-year period (2012-2016). In addition, multiple regression analysis measured the nature, magnitude and relationship among variables. Tables and other graphical representation were used to show the results with explanations in prose after each presentation.

The regression model established the relationship between digital strategy and financial inclusion among commercial banks. In this study, the dependent variable was measured using number of banks' customers using mobile and online banking services while the independent variables were mobile and online banking strategies.

The regression model specification was as follows;

Financial inclusion among commercial banks = α (digital strategy)

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

Where

Table 2.1 Analytical Model

	Meaning	Measurement
Y	Financial inclusion among commercial banks	number of accounts, deposits value, number of outlets and customer base between 2012-2016
X ₁	Mobile banking strategy	Investment in mobile phone banking in Kshs
X ₂	Online banking strategy	Investment in online banking in Kshs
X ₃	Agency banking strategy	Investment in agency banking in Kshs
X ₄	ATM banking strategy	Investment in ATM banking in Kshs
ε	error term	
β	regression coefficient	

CHAPTER FOUR: DATA ANALYSIS FINDINGS, INTERPRETATION AND DISCUSSION OF RESULTS

4.1 Introduction

This chapter highlights the findings on the effects of digital banking strategy on financial inclusion among commercial banks in Kenya.

4.1.1 Response Rate

The study sample of 126 respondents to whom questionnaires were administered to. However only 100 respondents responded to the questionnaires and returned them duly filled in constituting a 79.4% response rate. The adequate response rate was as a result of frequent courtesy calls and visits that the researcher made to encourage the respondents to participate in filling the questionnaires.

4.2 Demographic Information of the Respondents

To ascertain the suitability of the study respondents in participating in the study the study inquired on the respondents' highest level of education and work experience in the banking industry.

4.2.1 Respondents' level of education

The research wanted to determine the respondents' educational level as indicated in the Table 4.2 below.

Table 4.1: Respondents' level of education

Work experience in the banking industry	Frequency	Percent
Diploma	15	15
Degree	60	60
Master Degree	25	25
Total	100	100

From the findings 60% were degree holders, 25% master's degree holders while 15% were diploma holders. Since the majority of the respondents were degree holders and above, they understand the effect of digital banking strategy on financial inclusion and in effect provided relevant information.

The findings are similar to Tufano (2012) who reported that majority of banks in Kenya are managed by highly professional employees with exemplary academic performance.

4.2.2 Work experience

The work experience was also investigated on with results in 4.2.

Table 4.2: Work experience

Work experience in the banking industry	Frequency	Percent
One to two Years	35	35
Three to four Years	45	45
6-8 Years	20	20
Total	100	100

The study established that 45% had a banking work experience of 3-5 years, 35% had worked for 1-2 years, while 20% had worked for 6-8 years. The respondents had therefore worked in the banking industry for long enough to be able to provide reliable data information relating to effects of digital banking strategy on financial inclusion among commercial banks.

The findings are similar to Leiro and Letting, (2012) who established that majority of the employees in the Kenyan telecommunication were highly experienced based on over one year of work experience.

4.3 Digital Banking Strategy

The study objective was to establish the effects of digital banking strategy on financial inclusion among commercial banks.

4.3.1 Digital Banking Strategy

It was necessary to determine the extent to which bank were implementing the following digital banking strategies to ensure their profitability.

Table 4.3: Digital Banking Strategy

Digital banking strategies	Mean	Std. Deviation
mobile banking strategy	4.14	0.571
agency banking strategy	4.06	0.585
ATM banking strategy	3.54	0.838
online banking strategy	3.40	0.989

According to the findings in Table 4.3, it was indicated to a great extent that commercial banks had implemented mobile banking strategy (Mean=4.14); and agency banking strategy (Mean=4.06). On the other hand, it was indicated to a moderate extent that banks had implemented ATM banking strategy (Mean=3.54) and online banking strategy (Mean=3.40).

The findings imply that majority of the commercial banks in Kenya had adopted diverse digital banking strategies to not only ensure their sustainability but also to reach the unbaked people in Kenya hence contributing significantly to improved financial inclusion in the country. The banks heavily relied on digital banking strategies to enhance their reach, increase their market share and ensure increased clientele against a backdrop of reduced profitability from interest capping and stiff competition from other financial institutions like SACCOs, DTMs and micro-finance banks. Hence, the digital banking strategies were critical tool for the banks competitiveness and ensuring improved financial inclusion.

The findings are similar to Kimenyi & Ndung'u, (2009) who indicated that the Kenyan banking industry has been undergoing rigorous transformation including changing customer need, innovation, technological advancements, deregulation, globalization and stiff competition. To cope with such environment, banks are using different digital banking strategies.

4.4 Digital Banking Strategy Investment

4.4.1 Mobile Banking Strategy Investment

The findings on the mobile banking strategy investment in Kshs (Billions) as presented in Table 4.4 below.

Table 4.4: Mobile Banking Strategy Investment

Year	N	Mobile banking strategy investment in Kshs	Std. Deviation
2012	42	80, 000,000	0.018
2013	42	120000,000	0.814
2014	42	180, 000,000	0.314
2015	42	230,000,000	0.114
2016	42	260, 000,000	0.114

Source: CBK

From the findings, the mobile banking strategy investment was a mean of Kshs 0.26 billions in year 2016 which was an improvement from Kshs 0.08 in 2012 indicating increased use of mobile banking strategy. Thus, mobile banking as an digital banking strategy had a positive effect on financial inclusion.

This reaffirms the earlier findings of Sundbo (2008) that mobile banking had a positive effect on financial inclusion by reducing transaction costs and increasing the access to financing.

4.4.2 Online Banking Strategy Investment

The findings on the online banking strategy investment in Kshs (Billions) as presented in Table 4.5 below.

Table 4.5: Online Banking Strategy Investment

Year	N	Online banking strategy investment in Kshs	Std. Deviation
2012	42	20, 000,000	1.201
2013	42	30, 000,000	0.338
2014	42	50, 000,000	0.685
2015	42	70, 000,000	0.719
2016	42	80, 000,000	1.134

Source: CBK

From the findings, online banking strategy investment was Kshs 0.08 billions in 2016, an improvement from Kshs 0.02 billions in 2012 indicating continued application of online banking strategy. Thus, online banking as an digital banking strategy did not have the expected level of positive effect on financial inclusion in Kenya over the 5 year period. This is due to reason that online banking had associated costs like the internet and gadget costs which were not affordable to majority of unbanked kenyan. Similarly, to use online banking, the end users were required to be technology savvy which was another hinderance among the unbanked people. The small value of

standard deviation for the five year period averaged at 0.82 indicate minor variation on banks investment in online banking strategy.

According to Batiz-Lazo (2006) the use of online banking had associated costs like the internet and gadget costs which were not affordable to majority of unbanked kenyans. Similarly, to use online banking, the end users were required to be technology savvy which was another hinderance among the unbanked people.

4.4.3 Agency Banking Strategy Investment

The findings on the agency banking strategy investment in Kshs (Billions) as presented in Table 4.6 below.

Table 4.6: Agency banking strategy investment

Year	N	Agency banking strategy investment in Kshs	Std. Deviation
2012	42	100, 000,000	0.308
2013	42	150, 000,000	0.716
2014	42	190, 000,000	1.309
2015	42	210, 000,000	0.528
2016	42	240, 000,000	0.931

Source: CBK

From the findings, the agency banking investment was Kshs 0.24 bilions in 2016 a significant growth from Kshs 0.10 bilions in 2012 implying that the agency banking strategy was a tool for enhancing financial inclusion in Kenya. Therefore, agency

banking as digital banking strategy had a positive effect on financial inclusion in Kenya over the 5 year period.

CGAP Technology program (2007) argues that banking agents to reach the unbanked, observed that banking agents increase convenience of existing customers since very poor, remote clients often do not trust banks, improves indirect branch productivity and efficiency by offering additional points of sale, expanding customer base outside the existing branch network and reducing upfront cost by leveraging existing infrastructure.

4.4.5 Automated Teller Machine (ATM) banking strategy investment

The findings on the ATM banking strategy investment in Kshs (Billions) as presented in Table 4.7 below.

Table 4.7: ATM banking strategy investment

Year	N	ATM banking strategy investment in Kshs	Std. Deviation
2012	42	120, 000,000	1.205
2013	42	170, 000,000	1.229
2014	42	210, 000,000	0.816
2015	42	260, 000,000	0.544
2016	42	320, 000,000	1.041

Source: CBK

From the findings, the investment in Automated Teller Machine (ATM) banking was Kshs 0.32 bilions in 2016 from Kshs 0.12 bilions in 2012. implying heavy deployment of ATM banking strategy to increase access to banking services to the unbanked. The banks continued to invest in both basic and complicated Automated Teller Machine (ATM) in Kenya to drive the financial inclusion agenda across the country. Thus, Automated Teller Machine (ATM) banking as digital banking strategy had a positive effect on financial inclusion.

The findings are supported by Olugbenga and Olankunle (1998) there has been deliberate efforts among banks towards heavy deployment of ATM banking strategy to increase access to banking services to the unbanked. The banks continued to invest in both basic and complicated Automated Teller Machine (ATM) in Kenya to drive the financial inclusion agenda across the country. Thus, Automated Teller Machine (ATM) banking as digital banking strategy had a positive effect on financial inclusion.

4.5 Financial inclusion trend for a period of five years

The findings on the financial inclusion in Kenya between 2012 and 2016 was ascertained using number of accounts, deposits value, number of outlets and customer base over the 5-year period are as presented in the Table 4.8 below.

4.5.1 Number of accounts

Table 4.8: Number of accounts trend for five years

Year	N	Mean number of accounts	Std. Dev
2012	42	293,020	0.182
2013	42	344,190	1.923
2014	42	353,490	0.692
2015	42	402,330	0.342
2016	42	463,260	1.236

Source: CBK

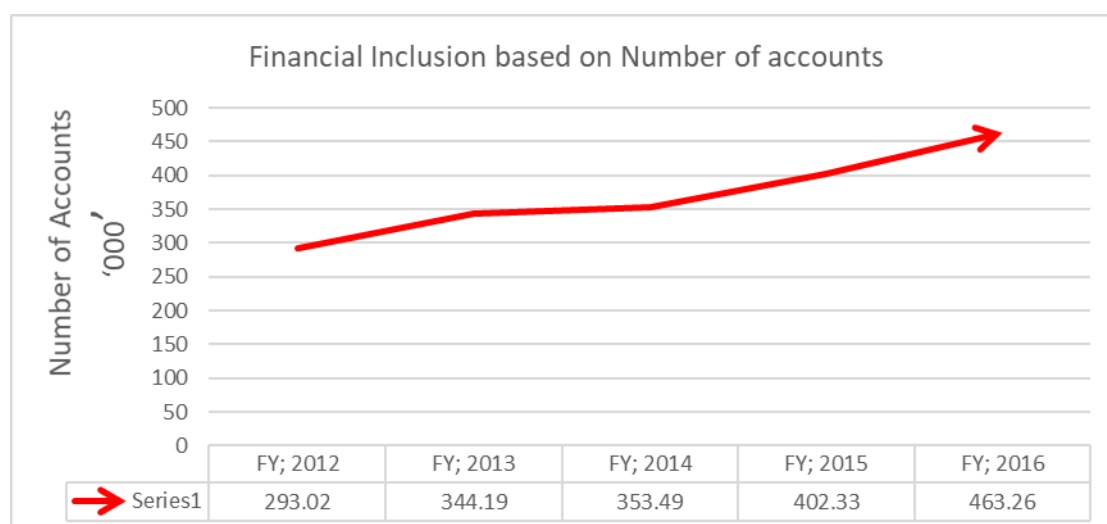


Figure 4.1 Number of accounts

The findings indicated that the lowest number of accounts was 293.02 (2012) which continuously increased over the years to 463.26 (2016) implying growth in number of customers and better access to financial services.

4.5.2 Deposits value trend for five years

Table 4.9: Deposits value trend for five years

Year	N	Mean Deposits value in Kshs	Std. Dev
2012	42	16,020, 000,000	0.481
2013	42	17,510, 000,000	0.643
2014	42	17,880, 000,000	0.772
2015	42	18,320, 000,000	0.802
2016	42	19,140, 000,000	1.058

Source: CBK

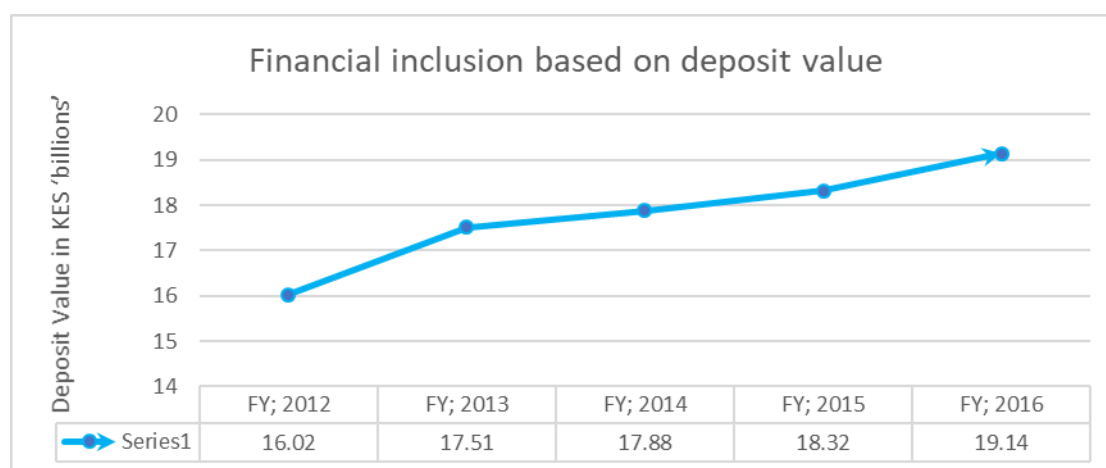


Figure 4.2 Deposits value

The findings indicated that the lowest deposits value was Kshs 0.481 billion (2012) which continuously increased over the years to 1.058 billion (2016) implying growth in deposits value and better access to financial services.

4.5.3 Number of branch network trend for five years

Table 4.10: Number of branch network trend for five years

Year	N	Mean number of branch	Std. Dev
2012	42	88	2.281
2013	42	94	1.643
2014	42	106	1.002
2015	42	112	1.153
2016	42	118	1.902

Source: CBK

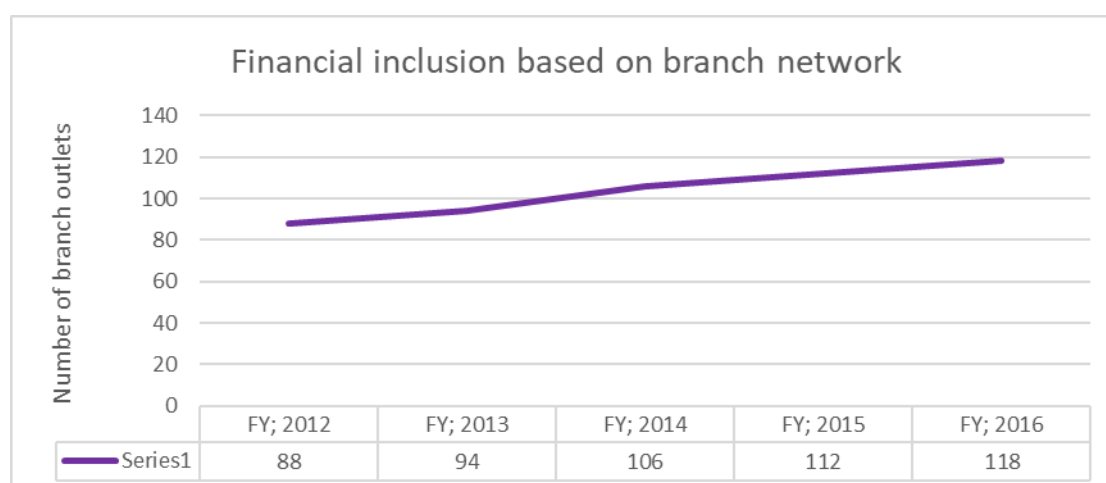


Figure 4.3 Number of branch network

The findings indicated that the lowest number of number of branch networks was 88 (2012) which continuously increased over the years to 118 (2016) implying growth in banks' branch networks s and better access to financial services.

4.5.4 Customer base trend for five years

Table 4.11: Customer base trend for five years

Year	N	Mean customer base	Std. Dev.
2012	42	332,450	1.419
2013	42	368,090	2.283
2014	42	421,880	1.132
2015	42	476,220	1.091
2016	42	505,810	2.742

Source: CBK

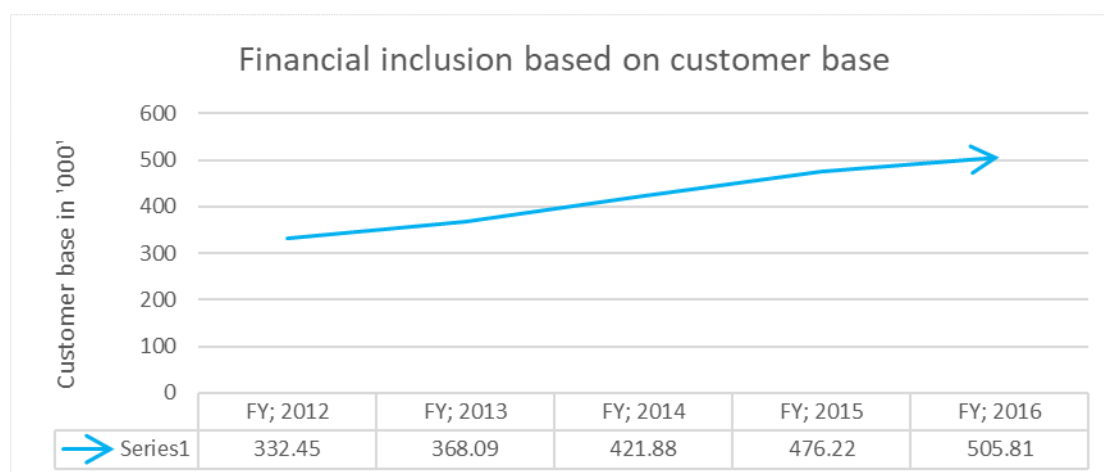


Figure 4.4 Customer base

The findings indicated that the customer base was 332.45 (2012) which continuously increased over the years to 505.81 (2016) implying growth in customer base and better access to financial services.

Increase in the number of accounts, deposits value, number of outlets and customer base imply improvement in financial inclusion rates in Kenya. On the other hand, high scores of standard deviations for each of the indicators of financial inclusion

indicate variation in the levels of financial inclusion among the commercial banks in Kenya. since the increased financial inclusion was happening at the backdrop of bank heavy deployment of digital banking strategy, thus, digital banking strategies have enhanced financial inclusion.

According to FinAccess (2009) the increase in the number of accounts, deposits value, number of outlets and customer base imply improvement in financial inclusion rates in Kenya. On the other hand, high scores of standard deviations for each of the indicators of financial inclusion indicate variation in the levels of financial inclusion among the commercial banks in Kenya. The increased financial inclusion was happening at the backdrop of bank heavy deployment of digital banking strategy, thus, digital banking strategies have enhanced financial inclusion.

4.6 Regression Analysis between Digital Banking Strategy and Financial Inclusion

Findings on the regression analysis used in the study is as indicated.

Table 4. 12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	. 899 ^a	.8082	.796	0.0014

The four independent variables that were studied, explain 80.82% of financial inclusion (R^2). Therefore, further research to investigate the other (19.18%) digital strategies that has effect on the financial inclusion in Kenya.

Table 4.13: ANOVA (Analysis of Variance)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.323	2	.202	8.66	.004 ^a
	Residual	5.408	3	.246		
	Total	6.898	5			

The findings indicate that the significance value is .004 which is less than 0.05 thus the model is statistically significant. The F calculated (value = 8.66) is greater than the F critical (3.23), thus the overall model was significant.

Table 4. 14: Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	B	
(Constant)	4.478	.826		3.61	.000
mobile banking	0.782	.0312	0.218	1.81	.0008
online banking	0.522	.864	0.359	8.41	.0026
agency banking	0.665	.453	0.146	2.52	.0017
ATM banking	0.712	.238	0.044	3.34	.0012

Source: Published Financial Statements of Commercial Banks in Kenya

Based on the findings, taking all factors (mobile banking, online banking, agency banking and ATM banking) constant at zero, financial inclusion will be 4.478. The data findings also show that a unit increase in mobile banking will lead to a 0.782 increase in financial inclusion; a unit increase in online banking will lead to a 0.522

increase in financial inclusion, a unit increase in agency banking will lead to a 0.665 increase in financial inclusion while a unit increase in ATM banking will lead to a 0.712 increase in financial inclusion. This means that the most significant digital banking strategy is mobile banking followed by ATM banking, agency banking and online banking respectively. Similarly, the significance values were as follows; mobile banking (0.0008); online banking (0.0026); agency banking (0.0017); ATM banking (0.0012). The most significant digital banking strategy is mobile banking followed by ATM banking, agency banking and online banking respectively.

The findings confirm that digital banking strategy played a great role in increasing access to safe, simple and affordable finance which was a prerequisite for economic development and decreasing disparities in income and poverty among Kenyans. The findings therefore confirm what the Finance-growth theory recommend that access to safe, simple and affordable finance is perceived as a pre-condition for quickening development and decreasing disparities in income and poverty which otherwise ought to ensure equal prospects, empowers the vulnerable and socially disempowered individuals to participate better in the economy and effectively add to development and shield themselves from economic shocks (Serrao *et al.*, 2012).

The study also confirm that the digital banking strategy were used by the banks to drive their profitability agenda and deal with the contrains bought about by intense competition in the sector. Therefore, these digital banking strategies were adopted by banks to address the constraints and burdens caused by unpredictable markets, control, operation costs and taxes. The findings are therefore in line with the

Constraint-Induced Financial Innovation Theory. The theory argues that the motivation behind boosting of firms' profits is the major drive behind embracing digital strategy. Similarly, the theory demonstrates that organizations introduce innovations to address the constraints and burdens caused by unpredictable markets, control, operation costs and taxes. The theory confirms that digital banking strategy is implemented by banks to diminish the financial problems that diminish their earning capacity, consequently companies enhance the returns on capital in the light of the organizations' objectives (Fitzpatrick et al., 2017).

In addition, the study infers that digital banking strategy applied by the banks was predominantly to reduce transaction cost and improve their operational efficiency. The study findings are therefore in agreement with transaction cost theory. The theory suggests that the digital strategy is predominantly driven by the firm's need to reduce transaction cost. Therefore, the reduction in transaction cost further stimulates the ripple effect of adopting a given digital strategy recognized in terms of improved service quality offered in this case increased financial inclusion. The motive of adopting digital strategy is to reduce the transaction cost and therefore the theory explains that when well executed, digital strategy enhances financial inclusion in the banking sector (Anthony & Harry, 2015).

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusions, and recommendations on the effect of digital banking strategy on financial inclusion in Kenya between 2012 and 2016.

5.2 Summary of Findings

The study established that the digital banking strategies that banks employed to ensure their profitability included; mobile banking strategy; agency banking strategy; ATM banking strategy; and online banking strategy respectively. Therefore, the majority of the commercial banks in Kenya had adopted diverse digital banking strategies to not only ensure their sustainability but also to reach the unbaked people in Kenya hence contributing significantly to improved financial inclusion in the country. The banks heavily relied on digital banking strategies to enhance their reach, increase their market share and ensure increased clientele against a backdrop of reduced profitability from interest capping and stiff competition from other financial institutions like SACCOs, DTMs and micro-finance banks. Hence, the digital banking strategies were critical tool for the banks competitiveness and ensuring improved financial inclusion.

In terms of financial inclusion, the study revealed that; there is a positive change in the number of accounts; deposits value; number of branch outlets and customer base, revealing growth in financial inclusion. On the other hand, high scores of standard deviations for each of the indicators of financial inclusion indicate variation in the

levels of financial inclusion among the commercial banks in Kenya. Since the increased financial inclusion was happening at the backdrop of bank heavy deployment of digital banking strategy, thus, digital banking strategies have enhanced financial inclusion in Kenya over the five-year period.

5.2.1 Mobile banking and financial inclusion

The study found out that the highest value of mobile banking strategy was on average two sixty million in 2016 while but it was eighty million in year 2012. This was significant improvement in investment in the mobile banking strategy among banks. Thus the use of mobile banking strategy as an digital banking strategy had a positive effect on financial inclusion in Kenya over the five year period.

5.2.2 Automated Teller Machine (ATM) banking Strategy Investment

The study found out that the highest value of mobile banking strategy investment was on average three hundred and twenty million in 2016 while but it was one hundred and twenty million in year 2012. This was significant improvement in investment in the ATM banking strategy among banks. Thus the use of ATM banking strategy as an digital banking strategy had a positive effect on financial inclusion in Kenya over the five year period.

5.2.3 Online banking Strategy Investment

The study found out that the highest value of online banking strategy was on average eighty million in 2016 while but it was twenty million in year 2012. This was significant improvement in investment in the online banking strategy among banks.

Thus the use of online banking strategy as an digital banking strategy had a positive effect on financial inclusion in Kenya over the five year period..

5.2.4 Agency banking Strategy Investment

The study found out that the highest value of agency banking strategy investment was on average two hundred and forty million in 2016 while but it was one hundred million in year 2012. This was significant improvement in investment in the agency banking strategy among banks. Thus the use of agency banking strategy as an digital banking strategy had a positive effect on financial inclusion in Kenya over the five year period.

The regression analysis established that four digital banking strategies that were significant in influencing financial inclusion in Kenya. The digital banking strategy that contributed to financial inclusion was mobile banking followed by ATM banking, agency banking and online banking respectively. In addition, the most significant digital banking strategy is mobile banking followed by ATM banking, agency banking and online banking respectively.

5.3 Conclusion

The majority of the commercial banks in Kenya had adopted diverse digital banking strategies to not only ensure their sustainability but also to reach the unbaked people in Kenya hence contributing significantly to improved financial inclusion in the country. The banks heavily relied on digital banking strategies to enhance their reach, increase their market share and ensure increased clientele against a backdrop of

reduced profitability from interest capping and stiff competition from other financial institutions like SACCOs, DTMs and micro-finance banks. Hence, the digital banking strategies were critical tool for the banks competitiveness and ensuring improved financial inclusion.

It is also concluded that digital banking strategies significantly enhanced the financial inclusion among commercial banks in Kenya. The digital banking strategies, increased access to banking services to the unbanked; enabled real time payments that has improved the movement of cash and has revolutionized the concept of payments; facilitated informal borrowing due to ease and low cost of mobile money transfer like M-pesa as well as reduced the costs associated with the search and markets.

There was a significant positive change in financial inclusion as proxied by the number of accounts, deposits value, number of outlets and customer base, over the five -year period. The steady rise in number of accounts, deposits value, number of outlets and customer base indicates growth in financial inclusion. Since the increased financial inclusion was happening at the backdrop of bank heavy deployment of digital banking strategy, thus, digital banking strategies have enhanced financial inclusion in Kenya.

The use of mobile banking strategy improved substantially thus, mobile banking as an digital banking strategy had a positive effect on financial inclusion in Kenya over the five year period.

Increased deployment of ATM banking increased access to banking services to the unbanked. Banks continued to invest in both basic and complicated Automated Teller Machine (ATM) in Kenya to drive the financial inclusion agenda across the country. Thus, Automated Teller Machine (ATM) banking as digital banking strategy had a positive effect on financial inclusion.

The online banking as an digital banking strategy did not have the expected level of positive effect on financial inclusion in Kenya over the five year period. This could be explained by the fact that the use of online banking had associated costs like the internet and gadget costs which were not affordable to majority of unbanked kenyans. Similarly, to use online banking, the end users were required to be technology savvy which was another hinderance among the unbanked people.

The adoption of agency banking strategy as a tool for enhancing financial inclusion in Kenya steadily grew substantially with agency banking as digital banking strategy having a positive effect on financial inclusion. The most significant digital banking strategy is mobile banking followed by ATM banking, agency banking and online banking respectively.

5.4 Recommendations

The mobile banking as a digital banking strategy impacted positively on financial inclusion. There is need for the management of the commercial banks to collaborate with the telecommunication players to enhance uptake of mobile banking for enhanced financial inclusion.

The online banking did not significantly enhance financial inclusion. The government through relevant ministry needs to continue investing in internet connectivity to increase access to online banking.

The agency banking had a positive impact on financial inclusion. There is need for the bank management to constantly review their agency policies to increase the number of agents for increased financial inclusion.

The ATM banking enhanced financial inclusion substantially. The commercial banks should continue investing on the modern ATMs that allow for diverse banking services hence increasing banking of the unbanked.

5.5 Suggested Areas for Further Research

Having focused on the effect of digital banking strategy on financial inclusion in Kenya a similar study should be done among other financial institutions other than banks for comparison purposes and to allow for generalization of findings.

A study should also be conducted on the effect of challenges facing the adoption of digital banking strategies among banks in Kenya.

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APPENDICES

APPENDIX I: QUESTIONNAIRE

I am Emily Kithinji, a student at UoN taking a master's degree in Business Administration. As a requirement for the fulfillment of the Master's degree, I intend to carry out a research on the effects of digital banking strategy on financial inclusion among commercial banks in Kenya. This questionnaire is therefore for the purpose of the academic research only and the information gathered will be treated confidentially. Please answer all the questions provided as honestly as possible, to the best of your knowledge.

Do I have your consent to proceed? Yes [] No []

Section A: General Information

1. What is your highest level of education?

Master's degree [] Degree [] Diploma []

Higher Diploma [] Certificate []

2. How many years have you worked in the banking industry?

0-2 years [] 3-5 years []

6-8 years [] More than 10 years []

Section B: To determine digital banking strategies adopted by commercial banks in Kenya.

3. To what extent do you think that your bank has been implementing the following digital banking strategies to ensure their profitability? Use a scale of 1-5 where 5 = To a very great extent, 4 = To a great extent, 3 = To a moderate extent, 2 = To a little extent, 1 = To no extent.

Performance measures	1	2	3	4	5
Mobile banking strategy					
Online banking strategy					
Agency banking					
ATM banking					

4. Over the last five years between 2012 to 2016, how much money have you used to implement the mobile banking strategy?

Year	2012	2013	2014	2015	2016
Amount in Kshs (in millions)					

5. Over the last five years between 2012 to 2016, how much money have you used to implement the online banking strategy?

Year	2012	2013	2014	2015	2016
Amount in Kshs (in millions)					

6. Over the last five years between 2012 to 2016, how much money have you used to implement the agency banking strategy?

Year	2012	2013	2014	2015	2016
Amount in Kshs (in millions)					

7. Over the last five years between 2012 to 2016, how much money have you used to implement the ATM banking strategy?

Year	2012	2013	2014	2015	2016
Amount in Kshs (in millions)					

Section C: Effect of digital banking strategies on financial inclusion

8. The following statements relate to the effect of digital banking strategies on financial inclusion among commercial banks in Kenya. to what extent do you agree with them? Use a scale of -, where =strongly disagree, 2= disagree, 3= Moderately agree, 4= agree while 5= strongly agree.

Statements on effect of digital banking strategies on financial inclusion	1	2	3	4	5
Mobile banking in Kenya has become a game changer in increasing access to banking services to the unbanked					
Mobile banking has enabled real time payments that has improved the movement of cash and has revolutionized the concept of payments					
The ease and low cost of MPESA have facilitated informal borrowing, perhaps even boosting it because it is so reliable					
Informal savings groups are using Mobile banking platforms like MPESA for transfers					
Mobile and online banking has significantly reduced the costs associated with the search and markets which is mainly associated with ATMs, smart cards and ACH technologies					

Section D: Financial inclusion

9. Over the last five years how many customers have used both mobile and online banking strategies?

Years	2012	2013	2014	2015	2016
Number of number of accounts					
deposits value					
number of outlets					
customer base					
Operating profit					

Thank you for your time and participation

APPENDIX II: LIST OF COMMERCIAL BANKS IN KENYA

1. African Banking Corporation Limited
2. Bank of Africa Kenya Limited
3. Bank of Baroda (K) Limited
4. Bank of India
5. Barclays Bank of Kenya Limited
6. CfC Stanbic Bank Limited
7. Charterhouse Bank Limited
8. Chase Bank (K) Limited
9. Citibank N.A Kenya
10. Commercial Bank of Africa Limited
11. Consolidated Bank of Kenya Limited
12. Co-operative Bank of Kenya Limited
13. Credit Bank Limited
14. Development Bank of Kenya Limited
15. Diamond Trust Bank Kenya Limited
16. Ecobank Kenya Limited
17. Equatorial Commercial Bank Limited
18. Equity Bank Limited
19. Family Bank Limited
20. Fidelity Commercial Bank Limited
21. Guaranty Trust Bank (K) Ltd
22. First Community Bank Limited
23. Giro Commercial Bank Limited
24. Guardian Bank Limited
25. Gulf African Bank Limited
26. Habib Bank A.G Zurich
27. Habib Bank Limited
28. I & M Bank Limited
29. Jamii Bora Bank Limited
30. Kenya Commercial Bank Limited
31. Sidian Bank Limited (Formerly K-Rep Bank)

32. Middle East Bank (K) Limited
33. National Bank of Kenya Limited
34. NIC Bank Limited
35. Oriental Commercial Bank Limited.
36. Paramount Universal Bank Limited
37. Prime Bank Limited
38. Standard Chartered Bank Kenya Limited
39. Transnational Bank Limited
40. UBA Kenya Bank Limited.
41. Victoria Commercial Bank Limited
42. HFC Limited

Source: Central Bank of Kenya, 2017