CHRISTIAN SERVICE UNIVERSITY COLLEGE, KUMASI

DEPARTMENT OF ACCOUNTING AND FINANCE

IMPACT OF DIGITAL BANKING INNOVATIONS ON COMPETITIVENESS OF UNIVERSAL BANKS IN GHANA.

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A thesis submitted to the Accounting and Finance Department, Christian University College, Kumasi in partial fulfillment of the requirement for the award degree of

Bachelor of Business Administration in Accounting

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DECLARATION

Student's Declaration

We hereby declare that this submission is our own work towards the Degree of Bachelor of Business Administration in Accounting and that, to the best of our knowledge, it contains no materials previously published by another person nor materials which has been accepted for the award of any other degree of the university, except where due acknowledgment has been made in the text.

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DEDICATION

We dedicate this research work to our family for their immense support and insight through this period of my education.

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Our sincere gratitude to my Supervisor, Mr. Ernest Obeng for his patience and to my family for their continuous support. Our profound gratitude to all our cherished respondents (customers of the various banks)

Most importantly, I am very grateful to God Almighty for sustaining my life and keeping me in good health throughout the period.

ABSTRACT

The emergence of Information and Communication Technology (ICT) in the banking sector provides a competitive advantage for banks by lowering operational cost and the best satisfaction needs for customers. Operations of banks therefore, have evolved from the exchange of cash cheques and other negotiable instruments to the use of digital applications for transactions. Through this technology, banks are now able to offer convenience services to their customers. The study seeks to examine digital banking innovation and explore competition with selected universal banks namely; GCB Bank, Agricultural Development Bank, ECOBANK, Standard Chartered Bank and the Guarantee Trust Bank. The study provided analysis on the level of digital banking technology usage, customer perception of digital banking, and the influence of digital banking on customer attraction, satisfaction and retention. The results on digital banking usage show that there are multiplicity of electronic banking services and products that banks customers use with ATM being the most popular and widely used. On the perception of respondents regarding digital banking services of their banks, customers perceived digital banking as a platform that enhance quality banking, eliminate long queue at bank and an easier and cheaper way of banking. It also satisfies banking needs, serve as convenient means of performing financial transaction and offer secured services among others. The study also explored the effect of digital innovation on competitiveness of banks. Customer attraction, customer satisfaction and customer retention were used as proxy measure of competitiveness. Results of the correlation analysis indicate that digital innovation is positively and significantly correlated with customer attraction and customer satisfaction but not significantly correlated with customer retention. Following the correlation analysis, regression analysis was performed to find out the digital innovation on customer attraction, customer satisfaction and customer retention. The results of the regression analysis as presented show that digital innovation has positive and significant effect on customer attraction and then on customer satisfaction. Digital innovation therefore has no direct effect on customer retention. Hence, the study recommends the need for banks to recognized and exploit the innovation potentials of digital banking applications in order to improve customer value, enhance customer attraction and satisfaction as well as increase banks' profitability as a whole.

ABBREVIATIONS

ICT - Information Communication Technology
ROE - Return On Asset
ROE - Return On Equity
BOG - Bank of Ghana
ATM -Automated Teller Machine
PDA - Personal Digital Assistant
E-Banking - Electronic Banking
M-Banking - Mobile Banking
WWW - World Wide Web
I-Banking - Internet Banking
PC Banking- Personal Computer Banking
WAN - World Area Network
EN - Enterprise Network
SMS Banking - Short Message Service Banking
ROI - Return On Investment
SWIFT - the Society for Worldwide Interbank Financial Telecommunication
NPM - Net Profit Margin
SCB - Standard Chartered Bank
ADB - Agricultural Development Bank
GT Bank - Guaranty Trust Bank
SPSS - Statistical Package for Social Sciences
EFTs - Electronic Funds Transfers
CA - Capital Adequacy
ME - Management Efficiency
CI - Cost to Income

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Information and Communication Technology (ICT) has become so pervasive that it is impacting virtually every sphere of life. Advancements in ICT have revolutionized many industries all over the world. ICT is redesigning the fundamentals of firms and has made most business operations to a large extent dependent on it (Appiahene, 2019). In an increasingly competitive market like the banking industry, innovation has been proven to be a tool for survival; hence, the adoption of digital innovation services. The use of Information and Communication Technology (ICT) is regarded as one of the effective means through which banks have adopted to gain competitive advantage in contemporary times since it lowers operational and administrative cost while enhancing customer satisfaction through the delivery of quality, quick and responsive services (Ackah, 2014). According to Ackah (2014) banks in contemporary times have migrated from cheque transaction to digital platforms that enable customers to carryout convenient, safe, fast and diverse range of transactions from the comfort of their homes.

It is therefore important in this world of electronic commerce for banks to provide electronic banking services in order to have a long term survival. Most banks in the developed and some in the developing regions are now offering electronic banking services with varied degrees of sophistication. Generally, banks are adopting digital or electronic banking (Digital banking) rapidly due to the high level of competition among banks themselves and other non-bank financial institutions. (Yap *et al.*,2012).

Vanmali (2016) defined digital banking as the integration of computerized based application, infrastructure and software into the banking framework of banking institutions which aims at rendering banking services to customers over an online or networked channel or platform. Digital banking can be simple defined as all forms of computerized based facilities that allow customers to issue banking transactions over mobile devices that have internet connectivity or operate within the same network (IDRBT, 2016)

As customer's expectations increase, retention becomes key to banks' growth and profitability in this era of competition (Monferrer-Tirado et al.,2016). The intense competition the banking sector of Ghana have compelled players to exploit available information communication technology innovations and facilities to gain competitive advantage through greater value generation to the customer. According to Mason (2020), the global banking industry is constantly experiencing changes due to information communication technology and digitalization. In the views of Mason (2020), the competiveness of banks is largely dependent on their abilities to anticipant the contemporary changes and react to them in the right manner on a timely basis.

The integration of information communication technology facilities, strategies and innovation have become the center stage of competitive advantage in the Ghanaian banking industry over the past decade. According to Asante-Gyabaah, (2015) the urgent need to gain competitive edge over industry players have compelled players in the sector to differentiate their services through the adoption of computerized based distribution channels and platforms that offer customers convenience. Electronic banking is regarded as the new normal in the banking industry since it provides end-to end benefits to sector players and customers. Banks transfer information through digital means to customers at a cheaper cost (Addae-Korankye, 2014). Electronic banking limit human interface in the transaction line thereby reducing the operational and administrative cost of the banks. In the views of Addae-Korankye (2014), electronic banking has revolutionized the banking industry to the point that about 80% of business transactions within the industry are carried through electronic platforms.

As in many other countries, the adoption of digital banking technology in Ghana was rather slow initially. Banks such as the Ghana Commercial Bank (GCB), Barclays Bank and Standard Chartered Bank introduced the first Automatic Teller Machines (ATMs), which was seen as a bundle of convenience to customers. With time, other banks followed suit and, today all banks provide a range of value-added digital banking services including balance enquiry, statement printing, account opening, funds transfer between accounts (and between banks), and linkages with mobile money wallets.

The major factors that have led to strategic integration of digitalization in the global banking framework are increased innovation, technological advancement, increased global market competition, trade liberalization and globalization (Krorir, 2016). Commercial Banks and other financial institutions in Ghana are making colossal in ICT assets and capabilities for survival, operational efficiency and competitive advantage, although there is not much empirical evidence to confirm the achievement of all these objectives. However, in research carried out on seven commercial banks in Nyahururu Town, Kenya, 87.1% of customers agreed that investment in ICT assets had contributed to the banks' sustainable competitive advantage (Ochieng et al, 2016)

So far in Ghana, there is not much research to share knowledge on the emergence and development of digital banking and its impact on competition to stimulate discourse that will lead to greater insights and improvements in banking performance.

1.2 Problem Statement

Baah-Nuakoh (2017) cites that one of the significant sectors that cannot be downplayed due to the enormous roles it plays in economic transformation in Ghana is the banking sector.

According to (Sprague, 2015), banks enhance the circulation of funds and currency within the economy that propels production, exchange, distribution and consumption of goods and service which in effect translate into socio-economic development. Contemporary competition in the banking industry have compelled players to adopt measures that improve service quality while lowering operational and administrative cost (Ackah, 2014).

Banks in Ghana have operated relatively in a stable environment after the liberation. The advent of internet banking has however made the industry faced with dramatic aggressive competition leading to the adoption new technologies to make the banking process faster and easier.

It has become a necessity for banks to migrate from conventional banking to digital banking since the later offers opportunities for banks to distribute their viable services to the customer through convenient and fast channels. The sharing of information between customers and the bank is regarded as one of the means of improving customer relationship. What electronic banking does is that, it allows the bank to communicate and share information to its customers in a timely manner (Ackah, 2014). Ackah (2014) continues to state that, digital banking enables banks to gain competitive advantage edge through enhancement of operational efficiency, reduction in operational and transactional cost while quality service is also delivered to customers.

Despite that fact that digital banking has proven beneficial in several parts of the world, developing countries especially in Africa still lag behind in terms of integration and implementation of digital platforms into the banking frameworks (Ackah, 2014). Most banks practicing digital banking face challenges such as poor integration of digital banking infrastructure, undefined customer preference of electronic banking infrastructure, under-utilization of installed digital banking infrastructure on the part of customers. It is evident that studies such as Ackah (2014) have examined the wider issues of electronic banking in Ghana yet empirical evidence on the association between the adoption of digital banking and competitive of the banking sector is still lacking of scanty. As to whether digital banking improves customer loyalty is unanswered in the context of Ghana. In light of this, this current study assessed the impact of digital banking innovations on competition of selected universal banks in Ghana.

Aims and Objectives

1.3.1 Aim

This study intends probing into the subject of digital banking in relation to how this has impacted competition among Universal banks in Ghana with respect to certain indicators.

1.3.2 Objectives

Specifically, the study seeks to:

i. Assess the Digital banking technologies used by Customers of selected Universal Banks in Ghana

ii. Examine the Perspectives of Customers on Digital Banking Innovations in Ghana

iii. Establish the Relationship between Digital Banking Innovation and Competitiveness of Universal Banks in Ghana

1.4 Research Questions

i. What Digital banking technologies are used by customers of selected Universal Banks in Ghana?

ii. What are the perspectives of customers on digital banking innovation in Ghana?

iii. What is the relationship between digital banking innovation and competitiveness of Universal banks in Ghana?

1.5 Significance of Study

Today's global market environment is very competitive, and adoption and use of Information and Communication Technology in banking operation is not just an option but a conscious decision for banks to ensure their profitability and survival in the future (Nigussie, 2015). It is believed that only banks that overhaul the whole of their customer service and delivery system and also utilize electronic channels to their operations are likely to survive and prosper in the contemporary business environment. Thus, the study will enable managers of banks in Ghana to adequately understand and be able to measure the impact of Information and Communication Technology on betterment of their performance to aid competition.

This study explores the effect of electronic banking on competitiveness in the Ghanaian Banking Industry based on five selected banks. The result of the study will help bankers, bank managers and all relevant decision makers to be aware of the role electronic banking plays on competitiveness of universal banks in Ghana. Moreover, the result of the study provides additional research insight into literature and would inspire other researchers to conduct more researches in the area.

Finally, the outcome of this study would be a very relevant tool that will guide the integration of robust digital banking solution into the banking sector of Ghana as it would provide guidelines to the banks on which digital banking solution that is most preferred by customers in Ghana.

1.6 Scope and Delimitation

This study is confined only to examine the effect of Digital Banking innovations on the competitiveness of Ghanaian Universal banks. Customers from the following banks; Standard Chartered Bank, Agricultural Development Bank, Guaranty Trust Bank, Ecobank and GCB bank are selected for the study. The study utilized these universal banks as they are known to have been accredited as the leading banks in areas of digital banking innovations. The Greater Accra branches of these bank were used for the study as these banks have high number of branches within Accra

1.7 Overview of Research Methodology

Survey research designed was used to guide the research process. Because this study was regarded as a business and social research, it was imperative to adopt this study design as proposed by Singleton and Straight (2009). Again this study design was adopted because the target population was relatively large and scattered across a wider geographical region. In effect, the target population of the study included customers of some selected banks who have been in business with their respective banks for not less than two years. The reason been that they are more accustomed with the products and services they are offered and will be in a better position to identify factors that influence their choice of a particular e-banking product or service. Five (5) banks in Accra were randomly selected. This sampling technique was chosen because, the study wanted specific data from specific category of employees. Also, thirty (30) customers from each bank were also randomly selected to give each customer equal chance of selection. In all the sample size was 150 customers. The dependent variable (Competitiveness) which is measured using customer attraction, customer retention and customer satisfaction whiles the independent variable (Digital banking) is measured using structured questionnaire on the availability, accessibility, convenience and challenges. The study used questionnaires as the research instruments and data was analyzed using SPSS V21 to present simple frequency and tables as well as establishing relationships between variables.

1.8 Organization of the Study

This study is structured into five different chapter of which each of the chapters had subsections. Chapter one formed the introductory section of the that highlighted the thematic areas of the research. It highlighted the problem statement, research objectives with its corresponding questions, justification, limitations as were as the scope within which the study was conducted.

Chapter two also presented the literature review that discussed the thematic areas and concepts that were relevant to the study. Chapter three also discussed the processes and methods that guided the entire research process. Chapter four also dealt with the findings as well as analysis and discussion of the raw data Chapter five also considered the summary of key findings from which conclusion and recommendations were drawn for policy action.

1.9 Definition of Key Terms and Concepts

Banking: Is a business activity where money and other valuable assets owned by individuals and institutions are accepted and held for safe keeping then lend out to conduct economic activities for profit making and to cover other operational cost.

Digital Banking: Refers to the entire adaptation of all core banking activities via an electronic means that is either through an internet enabled platform or automated process which enables customers to access banking application at their own convenience and ease. Examples of digital banking services and products include; internet banking services, mobile banking, mobile apps, ATMs, VISA/MasterCard, E-statement, E-zwich cards & Point of Sale, cheque writer and so on.

Innovation: It refers to creation of something new for the first time. Banking innovation refers to the system where banks design or create new or modern products and services to suit the needs of its customers as well as provide a more convenient and efficient means of accessing banking product and services with ease in the era of globalization.

Universal Banks: These are banks that offer wide range of financial services and products which include retail, commercial and investment as well as provide other financial services such as insurance. Examples of universal banks in Ghana include Standard chartered bank, Stanbic Bank, Fidelity Bank and the rest.

Competitiveness: Refers to the aggressive way banks compete among each other in areas of digital innovative products and services they offer to improve on profitability and growth. Competitiveness will be based on analysis of profitability measures. The study uses customer attraction, customer retention and customer satisfaction as a measure of competitiveness.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Improvement in the financial sector across the globe for the last three decades have generated a lot of argument on which financial product or services lead to greater profitability and competitiveness. It is evident that the global banking sector has seen significant improvement in terms of growth and innovation yet the factors that lead to competitive advantage in contemporary times where technology and digitalization are on the spree are inconclusive. What actually determine customer service, customer satisfaction and customer loyalty which are key facets of competitive advantage are debatable (Kamel, 2015). The emergence of information communication technology and electron business have improved operational efficiency in the banking sector yet as to whether they generate competitive advantage especially in the context of Ghana is still inconclusive. According to Kamel (2015), banks will continue to innovate, develop and growth their digital banking infrastructure because it is considered as the new normal in the banking industry. Banks will continue to develop their product and service in line with recent technology and digital platforms. This particular chapter of the study discusses the theoretical background, banking development in Ghana, digital banking innovations and digital banking in Ghana. It also encompasses sections on persistent of profit as a measure of profitability, digital banking and bank profitability, empirical review as well as conceptual framework for the study.

2.2 Theoretical Background

Theories explain the underpinning or motivation behind the occurrence of events and phenomenon in the world of research. In simple terms, theories explain the reasons why certain events occur in a given context. The theoretical underpinning of this current study is derived from the technology acceptance model and expectations confirmatory theory.

2.2.2. Expectations-confirmation theory

The basic tenet of the expectation-confirmation theory is that, while individuals or events are perceived to have expectations, the expectation is raised in the context of perceived performance (Oliver, 1989; Spreng et al., (1996). In such context, the association between expectation and performance leads to what is termed as post-purchase satisfaction. The association between expectation and performance can be positive or negative depending on the intermediating variable which it the context within which the phenomenon or event occurs. Contextually, the adoption of digital banking infrastructure by the bank is dependent on the expectation that, the infrastructure will generate value through improvement in operation efficiency that translate into customer service. In effect, the bank will be more willing to migrate from traditional banking to modernized digital banking when the later proves to be beneficial. On the side of the customer, his or her willingness to utilize installed digital banking infrastructure is dependent on the perceived or expected benefits that the infrastructure will generate for him or her (Oliver, 1980).

The four major components of the expectancy-confirmation model as indicated by Churchill and Suprenant (1982) include perceived expectation, actual performance, satisfaction and disconfirmation or confirmation. These components influence the anticipated behaviour of the customer towards a service or product. Churchill and Suprenant (1982) further describes these components of the model as predictive variables of the service or product putting into perspective future occurrences (Spreng et al., 1996). Expectation in this context explains what the customer uses to assess performance which translate into formation of confirmation or disconfirmation judgement (Halstead et al., (1999). Confirmation or disconfirmation on the hand is explained as the factors that predict the level of continuous usage or patronage on the part of customers based on past or previous satisfaction or dissatisfaction. In effect, positive confirmation translates into satisfaction while negative disconfirmation also translates into dissatisfaction.

One of the key debate that have over the past two decades risen in the literature of management and marketing are the relationship between satisfaction and disconfirmation. The causative factor of the challenge is inherent on how predictive or expected standards are defined in the relative context of the client or customer in relation to actual performance of the product or service. According to Santos and Boote (2003) a customer who is satisfied with a particular product or service may be dissatisfied with the same product or service when it is render under different circumstances. In effect, the actual performance of the product or service may be affected by under intervening factors which the producer may not have control over. In order to avert this challenge, researchers have over the last three decades proposed alternative standard comparisons such as previous product, service and brand experience, desires, equity, and ideals (Tse & Wilton, 1988; Halstead, 1999; Yi, 1990; Spreng et al., 1996; Woodruff et al., 1983). The theory applies to this study because it is associated with customer behavior. In line with this theory, customers' continuation with their banks is determined by their satisfaction with the use of digital banking technologies and the perceived usefulness of continued use of such technologies.

2.3 Banking Developments in Ghana

Information on the history of the Ghanaian banking sector was taken from the work of Antwi-Asare and Addison (2000). According to them, the history of today's banking industry in Ghana can be traced to the late nineteenth century.

The banking industry in Ghana has witnessed several changes in service delivery in the financial sector initiated in 1988, with the aim enhancing bank competition, bank efficiency and bank stability. The reforms are expected to foster economic growth and development of the country. Banks hitherto were delivery services to their customers through conventional manual systems and channels, which translated into long queues in the banking halls as well as prolonged service time. Many people including companies in Ghana were not accepting cheques for payment. This was due to inconveniences that were associated with the manual systems of banking. Partially, some businesses did not have business accounts hence inter as well as intra-bank transactions were inconvenient. The Barclays bank (formerly known as the Colonial Bank), Standard Chartered and Bank of Gold Coast were operating in Ghana under the colonial rule to provide commercial banking services aimed at offering trade finance and mainly providing services to the expatriate community. However, in 1953, Ghana Commercial Bank being the first indigenous bank was opened to offer credit services to the indigenous Ghanaians.

An enactment of a Legislative Instrument was done by the Parliament of Ghana right after independence in 1957. The aim of the Legislative Instrument was to divide the Bank of Gold Coast into the now Central Bank of Ghana and Ghana Commercial Bank. As at 1957, the Colonial Bank now Barclay bank as well as Standard Chartered Bank and Ghana Commercial Banks were the only three commercial banks operating in Ghana with over 70% control of all banking transactions in the country (Andoh, 1988)

Since these three banks were the only commercial banks in Ghana by then, they controlled all foreign business transactions and trade as well as trade and exchange of currencies. During that time domestic lending across the other sectors of the banking industry was were minimal since these banks controlled over 80% of all lending activities with the economy of Ghana. The tremendous changes in the banking sector has caused significant changes in the credit distribution system of Ghana. The composition of bank credit channeled to the import and export trade section which as estimated around 80% has been declined to a little below 30% in contemporary times due to competition and deregulation of the industry. It is worth noting that, at the end of the financial accounting year of 1984, the three major banks from immediate post-independence period had about 210 branches spread across the country with Ghana Commercial bank controlling majority of the branches as well as coverage. Ghana Commercial Bank had about 149 branches which was followed by 30 branches of Barclays Bank as well as 28 branches of Standard Chartered Bank.

By 1984 the number of commercial banks had increased from three to twelve in Ghana. The nine additional banks included, Social Security Bank, Cal Bank, Merchant Bank, Agricultural Development Bank, National Investment Bank, Ecobank Ghana Limited, Bank for Housing and Construction Limited, Ghana Cooperative Bank and Bank of Credit and Commerce.

It is important to note that several commercial banks emerged between the periods of 1984 and 2012. Some of the banks that were established between those periods include Stanbic Bank, United Bank of Africa, Guaranty Trust Bank, Energy Bank, UniBank, Fidelity Bank Ghana, International Commercial Bank, Unique Trust Bank, Access Bank among others. It is equally important to note that majority of these banks are owned and managed by African Business men from Ghana, Nigeria and Sub Saharan African countries. Commercial banks in Ghana have over the years been managed by highly skilled human resources from Ghana.

An entirely new banking sector act was enacted by the Parliament of Ghana to regularize and monitor the banking sector in order to improve service quality, operational efficiency, competitiveness and robustness of the banking sector. The banking act of 2004 led to the cancellation of secondary reverses with the introduction of the GHS 60 million new capital requirement. The capital requirement was further increased to GHS 120 million in 2012. The new banking act also led to the introduction of the universal banking license which enabled commercial banks in Ghana to provide diverse range of banking services including international banking.

The banking industry of Ghana also witnessed several merger and acquisition over the two decades. Some of the mergers and acquisition were carried out in order to meet the 2007 as well as 2012 minimum capital requirement. Some of the notable merger and acquisitions include Ecobank Ghana Limited and Trust Bank Ghana, Access Bank and Intercontinental Bank, Republic Bank of Trinidad and Tobago and HFC Bank among others. The banking sector of Ghana has undergone severe financial crises over the last five years which resulted into the collapse of banks such as Capital Bank and Unique Trust Bank as well as the revocation of the license of UniBank, Sovereign Bank, Beige Bank, Royal Bank and Construction Bank. The distress that occurred in the banking sector between 2013 and 2018 were attributed to mismanagement, misappropriation, weak corporate governance, corruption and conflict of interest. The Central Bank of Ghana in the later part of 2018 undertook a banking sector clean-up with the aim of enhancing the robustness and soundness of the banking as well as enhancing public confidence in the sector. This led to the introduction of the new universal banking capital requirement of GHS 400 million in 2018. The recapitalization efforts of the Central Bank of Ghana was to ensure;

1. Capital injection into the banking sector
2. Capitalize income surplus through the enhancement of public confidence in the sector that would translate into increase savings and investment.

Closing the financial year of 2018 which was the deadline for commercial banks to meet the new capital requirement only twenty-three (23) universal banks could be declared as functional having satisfied the capital requirement of GHS 400 million. According to the Central Bank of

Ghana, only sixteen commercial banks had the financial muscles to meet the capital requirements while the other who could meet the deadline had to undergo mergers and acquisition.

2.3.1 Structure of the Banking Sector of Ghana

The banking sector of Ghana has of the last decade undergone several structural adjustments. The most notable one is regarded as the insurgence of foreign banks operating in Ghana as well as the introduction of the universal banking license by the bank of Ghana that allowed commercial banks to render internationally acceptable banking services. The report of the International Monetary Fund (2010) indicated that commercial banks controlled about 75.1% of the total banking assets of the country with rural and micro-credit firms controlling a little over 24% of the financial assets of the country. This situation explains how dominate commercial banks have been over the last ten years in Ghana. According to IMF (2010) about 38.3% of banks in Ghana are owned by foreign investors with majority of them coming from Nigeria. According to IMF (2011), foreign banks controlled over 51% of the total financial assets of Ghana. As at 2010, there were 776 branches of banks spread across the country. The deregulation and liberalization of banking in Ghana have also allowed new banks to suffice the banking space of Ghana.

2.4 Digital Banking Innovation

2.4.1 Definition of Innovation

There have been several variant of the definition of innovation depending on the context and angel within which the definition is taken (Agolla & Van Lill, 2016; Amabile, 1996). For example, Agolla and Van Lill (2016) defined innovation as the creation, adoption and implementation of new process, ideas, product and services. West and Anderson (1996) also defined innovation as the efficient adoption of implement of processes, ideas and procedures as well as products and services that are entirely new to the organization in order to enhance productivity and efficiency.

In another tangent, Kimberly (1981) exclusive defined the context of innovation to include three major components that are; generation of new ideas, new products and new attributes of organizations. Baregheh et al., (2009) also defined innovation as a multiple stages or procedure that lead into the creation of new ideas that transforms the products and services of the organization. Innovation therefore leads to productivity and profitability through operational efficiency. Taking clues from these definitions, it can be said that, the most highlighted component of innovation is new; either new processes, new ideas, new products, new services, new technology among others. Contextually the study defines banking innovation as the introduction of new ideas, technology, systems, applications and processes that enhances service delivery hence translating into operational performance and competitiveness.

2.4.2 Digital Banking Innovation

Amin (2016) suggests that the emergence and development of technology has caused significant changes in the banking sector across the globe over the past three decades. The introduction of innovative services such as ATMs, mobile banking, internet banking among other was geared towards improving customer service and customer satisfaction as well as customer loyalty (Mishra, 2014). According to Thakur (2014) the conventional paper-manual banking caused prolong hours of banking service delivery in the banking hall which translated into less productivity. The introduction of innovative banking has enable customers to conduct banking transactions on their mobile devices and personal computers in real time without necessarily visiting the banking hall (Proenca and Rodrigues, 2011). The introduction of telephone banking has also improved the relationship between banks and their customers as banks are able to offer real time responsive assistance to their customers on the telephone. According to Jan and

Abdullah (2014), the emergence of innovative banking has also increased customer satisfaction. In the views of Jan and Abdullah (2014), in as much as customers are concerned about quality, they also show equal concern and loyalty to organizations that offer products and services in a quicker and convenient manner. Wu et al., (2006) also suggests that the introduction of innovative banking has improved the competitiveness of the global banking industry.

2.5 Digital Banking Innovations in Ghana

Information Communication Technology has changed the way and manner customers evaluate financial products and services in Africa over the last two decades (Abor, 2004). Ghana has also received it share of banking sector innovation and transformation since services such as internet banking, mobile banking, Automated Teller Machines among others have emerged over the last two decades. Abor (2005) indicates that these forms of innovations have gained prominence in the banking sector of Ghana. Conventionally, banks have over the past two decades invested into technologies that allow them to render services to their customers in a more efficient and timely manner. The main reasons for the adoption of ICT based banking infrastructure is to render convenient services to client, while increasing profitability and competitiveness. Abor (2004) opines that, the most significant electronic innovation that has improved banking in Ghana over the past two decades is the introduction of the Automated Teller Machine. The introduction of ATMs has allowed banks to provide virtual money withdrawal to their customers in a more efficient and convenient manner. Since The Trust Bank introduced ATM in Ghana in the years 1995, the technology has seen significant acceptance by other banks as well as customers. It is evident that, all commercial banks who operate in Ghana have ATMs that render automated money withdrawal services to customers all over the country.

The combination of human tellers and automated teller machines has increased productivity in the banking sector in Ghana over the last ten years. This is because banking hours have been reduced by automated teller machines (Hinson et al., 2006). Customers have over the years benefited from internet banking because of shorter queues in the banking halls. According to Asante et al., (2011), individuals and corporate organizations are able to covert the time that they would have spent in the banking hall to productivity hours. According to Rose (1999), ATMs have become one of the cost-effective alternative of rendering money dispensing services to customers in real time. Rose (1999) opines that the introduction and acceptance of digital banking has increased competitiveness and productivity of the sector.

According to Essinger (1999), the overarching goal of internet banking is the render quick, easy and convenient banking services to customers through the world wide web or mobile applications. Internet banking allow customers to access several banking products, services and information on their mobile devices at the comfort of their homes. Essinger (1999) opines that, internet banking allows customers to undertake specific banking transactions in more secured and safe virtual environment that is free of errors.

The phenomenon of internet banking is not new in Ghana though it is regarded as a contemporary event that has transformed the banking sector. The introduction of internet banking in Ghana have reduced prolonged service delivery time, long queues at the banking hall as customers are able to access banking services over the mobile devices that are connected to the internet. The introduction of internet banking has enhanced banking in Ghana since customers are able to access auxiliary banking services such as account statement, transaction alert among others on their mobile devices with ease. In effect, internet banking has become an integral part of the banking framework in Ghana. With the enhancement in mobile application development, customers are able to perform personal account transaction such intra-bank and inter-bank funds transfer, balance enquiry, payment of bills, transaction log among others on their mobile devices (Acquah, 2006). According to Frimpong (2010), internet and mobile banking have reduced serval inefficiencies in the banking sector of Ghana.

2.5.1 Historical Perspectives of Banking Innovations

The basic underpinning of financial innovation as proposed by Silber (1983) is inherent on the premises that the development of the financial sector through innovation is key for financial sector inclusion (Li & Zeng, 2010). Ionescu (2012) suggests that, innovations in the financial sector can be explained as new resolutions that enhance the liquidity of banks through the application and integration of new banking solutions.

Sekhar (2013) also suggests that, financial innovation is crucial to the development as well as competitiveness of the banking sector. In the views of Sekhar (2013), banking sector innovation have enhanced economic advantage for banks that have successfully integrated such platforms into their banking frameworks. Bakos (1998) explained financial sector innovation as new ways of enhancing productivity through the introduction of technological solutions aimed at generation higher ends and better returns for players of the industry as well as customers. Blach (2011) also explained banking sector innovation as tools and strategies that are used to resolve as well as manage banking tasks in a more efficient and robust manner.

2.5.2 Adoption of Electronic Banking in Ghana

The earliest forms of information communication based technologies that were introduced in Ghana in the early 1980s were dominantly used in the offices. Devices such as telephones, facsimiles and telex were introduced by companies to deliver efficient, efficient, convenient and responsive services to clients. The insurgence of electronic banking was driven by the results that the introduction of telephony brought to organization. For over two decades, now, banks have rapidly accepted the fact that, internet banking has become an integral part of the global banking business.

The emergence of globalization, trade liberalization and market competition made it needful for organizations including banks in Ghana to migrate from conventional manual banking to a more robust digital, modern and computer based banking that lead to greater efficiency hence greater value for the customer. Innovation and continuous development in information communication technology such as application and software development, hardware development, database management among others also provided an avenue for banks to make network and internet banking a reality.

Standard Chartered Bank Ghana Limited and Barclays Bank Ghana Limited as regarded as the pioneers of electronic banking in Ghana. Although Automated Teller Machine was first introduced into the Ghanaian Banking space by The Trust Bank, Barclays Bank Ghana Limited is considered as the bank the opened the gateway for internet and mobile banking in Ghana of which the other commercial banks followed. The Automated Teller Machine is considered as the single most important innovation and technology that have over the past two decades revolutionized the banking sector of Ghana. Banks including commercial and rural banks across the country have installed ATMs across the country that offer convenient and affordable fund withdrawal services to customers. The introduction of ATMs has reduced in significant terms the number of people who queue at the banking hall for withdrawal. This situation has also improved transaction times at the banking hall. Although the introduction of ATMs has seen successful integration into the banking sector as well as significant acceptance by customers, it is evident that customers still go through challenges such as network problems when using the ATM. It therefore imperative that banks improve their ATMs responsiveness in order to gain competitiveness and operational efficiency.

The development of ICT infrastructural base of Ghana through digitalization has also helped banks the integrate internet banking systems and platforms into their banking framework. Today, individuals and organizations can conveniently sit in their homes and offices to transact businesses on their mobile devices without necessarily going to the banking hall. Banks have installed and implemented websites and mobile applications that allow customers to access the wide range of banking products and services as well as information and data on their devices such as laptops, desktops and mobile phones that have internet connectivity. It is evident that banks will continue to improve their internet or mobile banking infrastructure due to the benefits they derived from them. According to The Cedar Group Consulting Firm (2004), internet banking presents banks with great avenues to enhance their profitability and competitiveness through the delivery of convenient, quick and quality services to the client.

According to Wind (2001) businesses are focused on delivery services that enhance customer satisfaction. Contemporary customers are concerned about organization that can deliver quick and convenient services although they are also concerned about quality. A customer is also concerned about the time he or she spends when service is being delivered to him or her. Firms that are able to deliver these services to deliverables to customers often gain competitive advantage. Conventionally, banking days run from Monday to Friday excluding weekends. It is imperative to note that internet and mobile banking have made it possible for customers to access banking services on weekends. It is therefore important to note that banks that have reliable and convenient internet banking infrastructure are more likely to gain competitive advantage.

Ghana has over the last decade seen significant improvement, innovation and development in the mobile telecommunication industry. This development has also assisted in the adoption and integration of mobile and internet banking in Ghana. The introduction of mobile money transaction platforms in Ghana by the telecommunication companies have over the last decade made it possible for individuals to integrate their bank accounts into their mobile money wallet which allow them to conduct series of banking transactions on their mobile devices. The recent interoperability concept introduced by the government of Ghana which was embraced by the banks and telecommunication companies have also allowed mobile user to conduct intra-bank and inter-bank fund transfers on their mobile devices.

2.5.3 Forms of E-Banking Service Delivery Channels

The next sections discuss the different forms of information communication technology based infrastructures that have been adopted in the banking sector of Ghana.

2.5.3.1 Automated Teller Machine

Rose (1999) explained Automated Teller Machine as the computerized base teller infrastructure that combine terminals, cash vault and database into a single unit or system that allows customers to inter into the cash book keeping systems of banks with their unique plastic cards that have specific pin codes. According to Rose (1999), the ATM accepts punch commands from the customer which are integrated into the computerized records of the bank. The ATM accepts valid commands and processes them and render teller services to the customers within a specific limit. Automated Teller Machines are most located outside the premises of the bank. They often located at vantage points that are accessible to the banking public. Automated Teller Machines were basically introduced to offer funds withdrawal services to customers however, due to technological advancement some specialized ATMs can render a wider range of services such as fund deposits, bill payment, balance enquiries among others. The introduction of ATMs has allowed banks to gain competitive advantage since they are able to render quick, reliable and convenient 24-hour banking services to customers.

The combined services of human tellers and automated teller machine have improved efficiency and effectiveness as well as productivity in banking sector as long queues have been significantly reduced in the banking hall. It has also offered convenience to the customer while it saves their time and efforts of going to the banking hall for funds withdrawal (Rose, 1999).

2.5.3.2 Telephone Banking

Telephone banking is often regarded as a form of virtual or remote banking that allow customers to conduct a wide range of banking transactions on over the telephone (Balchandher et al., 2001). According to Balchandher et al., (2001), telephone banking platforms allows the customers to conduct retail banking by dialing a mobile or telephone number which is connected to an automated response system of the bank. The response system of the bank is called Automated Voice Response (AVR) technology (Balchandher et al., 2001).

In the views of Leow (1999) telephone banking provides an end to end benefit for the bank and the customers as it saves time and effort. It provides convenience and increased access of banking services to the customer. Telephone banking also provides a cost effective avenue for the bank to build a health business relationship with its customers. Telephone banking infrastructure enhances productivity as it provides retail banking services to clients even after banking hours. Although the productivity magnitude of telephone banking cannot be compared to Automated Teller Machine, it also increases productivity since customers can equally, purchase retail banking services from the comfort of their homes and offices through telephone banking (Balchandher et al., 2001).

2.5.3.3 Personal Computer Banking

The emergence of information communication technology has increased access to personal computers such as desktops, laptops and palmtops. These personal computers can also be used to conduct banking transactions. Personal computer banking is described as the situation where a customer uses his or her personal computer device to access information and data of their bank accounts via a network over computer software of world wide web. The customer can perform series of retail banking on his or her personal computer that has access to the network. Similar to

ATMs and telephone banking, personal computer banking also provides customers access to 24-hour retail banking services (Abor, 2005).

2.5.3.4 Internet Banking

The overarching goal of internet banking is to give customers increased access to their bank accounts and details over mobile internet based applications and world wide web. According to Essinger (1999), internet banking allows customers to effect series of transactions over the internet. Internet banking also allows customers to seek information on their transaction log, account balances, account statement among others. According to Essinger (1999) due to the vulnerability of the internet, banks that have installed internet banking infrastructure implement stringent and strict security protocols that prevent intrusion, fraud and violation.

The versatility of internet banking offers a quicker, reliable, flexible and convenient banking services to customers as they are able to exert control over their banking times and preferences in the comfort of their homes and offices. Internet banking is also regarded as one of the best alternatives to reducing long queues in the banking hours. Most banks implement internet banking systems to reduce service delivery time in the banking hall while improving productivity. Internet banking also provide a more reliable avenue for the bank to reach customers in distance places that do not have access to automated teller machine.

2.5.3.5 Branch Networking

Branch networking is regarded as one of the innovations that have improved banking across the globe. Network branches is defined by Abor (2005) as the interconnecting as well as computerization of bank branches that are scattered over a wide geographical region into a single system that from a wide area network or an enterprise network. The premises of branch network are to create a unified database system that creates, shares and consolidate the data, records and information of customers for the internal purposes of the bank.

This explains why customers can conduct banking transaction with their bank in any branch across the networked geographical region. This system offers a quick real time avenue for banks to communicate and share information over a single platform. It also allows intra-bank and inter-bank funds transfers. The emergence of branch networking has reduced the travel times of customers since they can access banking services at any branch that is close to them.

2.5.3.6 Mobile Banking

Technology has influenced the way banking is done in Ghana. Over the years, we have witnessed the use of mobile banking services which have transformed our banking transactions. According to Stair and Reynolds, (2008), mobile banking can be defined as a product or service that provides a wide range of banking services such as checking account balance, funds transfers and so on via a user's mobile phone. Electronic banking continues to have profound impact on business globally, but technologies and applications also have begun to focus more on mobile computing, wireless web and mobile commerce (Shaikh and Karjaluoto, 2015). Some Traditional banks according to Woldie et al (2008), however, tend to be development and commercial oriented. This explains why most banks are adopting the mobile banking services to remain competitive and profitable to serve their nationwide coverage and huge customer base predominately "low-income earners, low skilled workers and less 'technology Savvy' having no access or limited access to computer and internet. Mobile banking is now one of the latest digital banking services offered in Ghana. Its emergence tends to have a significant impact on the financial market amidst the already existing systems like the Automated Teller Machine (ATM), telephone banking and internet banking which equally act as delivery channels. (Safeena et.al,2012).

According to Shaikh (2013) the emergence of smartphones has also increased the demand for M-banking services prompting more banks, microfinance institutions, insurance companies and other non-financial institutions to provide the services to its clients (including the unbanked population) in order to improve on customer retention, enhance operational efficiency, increase market share and remain competitive in the industry. Some mobile banking services offered in Ghana include, SMS banking, Mobile banking apps, mobile money interoperability (a value added service of the mobile network), money mobile money linkage with bank account, linkages of international remittance as a value added service to mobile money wallet and to bank account and the rest. These services are provided by almost all the universal banks in Ghana. The above listed enable customers to perform the following transactions:

- Checking account balance and mini statements
- Internal transfer including third party transfers and from a mobile money account to bank account.
- Bill payment
- Alerts on transactions on account.
- Mutual funds/ equity statements.
- Access to loan statements
- Insurance policy management.

With its growing impact in the economy, several banks are utilizing this important innovation to enhance customer service, decrease operational and administrative cost, increase customer satisfaction and improve their payment systems (Segun, 2011).

2.5.4 Benefits of Digital Banking Innovation

The banking sector like any other service sector is drive by intense competition hence the adoption skilled labour and innovative means of business is required to survive as a functional bank. The adoption of technology is not a new phenomenon in the global banking industry. According to Mols (1998), banks across the globe over the past decades have invested into technology that reduce transaction and service delivery time while focusing of productivity and operational efficiency. Putting into context the competitive nature of the banking industry, profitability and survival require improved service quality and efficiency (Mols, 1998). This is what digital banking gives to banks that have taken time and efforts to invest into technologically based banking infrastructures (Mols, 1998).

According to Mols (1998), the emergence of electronic or digital banking has given several benefits and opportunities to banks and customers respectively. According to Mols (1998), electronic banking enables the bank to enhance its brand and image presence while been very responsive to the market. On the other hand, electronic or digital banking allows customers to access real time information and banking services and product on their mobile devices from the comfort of their workplace and homes. In effect, digital banking reduces the long queues in the banking halls thereby translating into productivity and monetary value for the bank and the customer alike.

Several empirical studies such as Mols (1998) have opined that, digital banking have significantly reduced the amount of time spent in the banking hall. While customer can transact banking businesses on their phones and computers, it becomes needless for them to go to the banking hall. While customers can access cash dispensing services at the ATMs, it become needless to go to the banking hall for such services. While customers can make enquiries into their account through telephone banking, it becomes needless for them to go the banking hall for such services. The emergence of branch networking has also reduced the travel times of customers since they can access any banking services at the nearest branches.

The study of Jen and Michael (2006) suggest that digital or electronic banking have allowed banks to improve their global presence as their customers worldwide can access their services through branch networking. In the views of Jen and Michael (2006) the emergence of internet banking has made it viable, convenient and reliable for customers to communicate and transact banking businesses even when they travel abroad. The study of Liao and Cheung (2003) also add that the emergence and integration of internet banking has improved the competitiveness of global banking giants such as Barclays Bank since they have global presence in almost every part of the world.

Another study by Rikta (2007) that assessed the introduction of internet banking and how it has impacted the banking sector of Bangladesh also indicated that the integration of internet banking into the banking framework of Bangladesh have improve competitiveness, productivity and access to banking information. Han (2008) also adds that, the emergence of internet banking in Bangladesh have reduce the time spent in banking halls thereby improving productivity throughout several sectors of the economy. Rikta (2007) indicated that the introduction of digital banking in Bangladesh has helped individuals, SMEs and corporate organization to improve their productivity as the time they would have spent in the banking hall are converted to productive hours at the workplace.

The study of Rotchanakitumnuai and Speece (2003) showed that digital banking provide end to end benefits to the customer and the bank. This is because the customer is able to check account balances, transfer funds, receive payment and also pay bills without moving to the banking hall. In the views of Rotchanakitumnuai and Speece (2003) the time that would have been spent at the banking halls for these transactions are save and converted to productive hours. The monies that would have been spent of transportation to the banking halls are also saved and channeled into productivity. On the other side, the bank is able to deliver quick services to a large number of customers at a go. This also translate into productivity which ultimately generate monetary gains and competitive advantage for the bank.

Cheng et al., (2006) also add that, the introduction of digital banking has reduced the number of people who do transactions at the banking hall. According to Cheng et al., (2006), customers do not need to go to the banking hall simple transactions that can be done on their mobile devices. Customers can even apply for loans and credit facilities on their mobile devices (Smith & Rupp, 2003).

2.6 Persistent of Profit as Measure of Competition

Berger (2000) explained profit persistence as the ability of a firm to stay maintain a consistent industry performance putting into perspective obstacles such as competition and information opacity. Garza-Garcia (2011) opines that, any increase in competition and profitability in the banking sector would trigger and influx of other players into the sector. This is expected to wipe out the excess profit of giants in the industry to new entrants (Athanasoglou et al., 2005). Athonasoglou et al., (2005) explained this phenomenon as the speed of profit adjustment to equilibrium. In the views of Athonasoglou et al., (2005) a significant positive coefficient is expected for the lagged variable which lies between 0 and 1 translating into dynamics in profit equilibrium.

2.7 Digital Banking and Bank Competitiveness

Sathye (1999) opines that, the perceived economic advantage of electronic banking would induce customers to adopt or accept electronic banking facilities and services. The study of Carlson et al., (2001) as well as Furst et al., (2002a) that assessed the relationship between electronic banking and competitiveness and profitability of banks concluded that electronic banking could increase the return on equity of banks in the US that had integrated electronic banking infrastructure in their banking framework. Although the study concluded that, the adoption of electronic banking could not increase competitive advantage for banks. Their study is also supported by England et al., (1998) who conclude that, digital banking improved return on equity but could not influence competiveness in any way.

Sathye (1999) suggests that internet banking generates two forms of benefits to the bank. These include the reduction of operational and administrative cost while the second benefit is the enhancement of operational and administrative efficiency. According to Polatoglu and Ekin (2001), electronic banking reduces banking cost while it improves operational and service delivery efficiency which ultimately translate into profitability. Although some customers perceive internet banking as expensive yet they overate the benefit accrued from internet banking the initial cost. According to Gerrard and Cunningham (2003) customers consider the fact that they will not visit the banking hall for simple transaction as more beneficial than the mere cost of using internet banking platforms.

However, it is noted that in cases where consumers perceive electronic banking as expensive, then it does not add to the satisfaction they derive from the product or service rendered by the financial institution (see Gerrard and Cunningham, 2003).

Simpson (2002) also opine that the underlying motivation for the adoption of internet banking is to minimize operational cost while optimizing operational revenues. In an evaluation of the impact of online banking in developed and emerging markets, the study of Simpson (2002) revealed that banks that have platforms that allowed customers to conduct banking transaction online from the comfort of their home generated more value than those that did not have such platforms. The study revealed that banks that provided online banking to their customers increased profit margins by 9% more than those who did not have such systems.

2.8 Empirical Review

Various studies have been conducted into the relation between innovation and competitiveness. These studies have mostly resulted in findings that suggest a positive relationship between innovation and competitiveness.

The study of Mbama (2018) the assessed the impact of digital banking services on customer experience and financial performance among some selected banks in the United Kingdom revealed that digital banking platforms such as telephone banking, mobile banking, ATMs generated greater values for customers hence they could influence the experience of the customers which ultimately translated into financial profitability and performance, customer service, responsiveness, customer loyalty and customer satisfaction.

The study of Gakure and Ngumi (2013) that examine whether innovative banking could influence the financial performance and profitability of banks in Kenya revealed that, innovative banking system could exert a moderate influence on profitability and operational efficiency of commercial banks that had installed electronic banking systems. The analysis showed the 47.8% of the variation in bank profitability was explained by financial innovations. However, it was determined that a single innovation did not have significant impact on bank profitability. Banks were thus better of adopting a combination of financial innovations to add a meaningful or significant contribution to the profits.

A study conducted by Scott et al. (2010) examines the impact of large financial network innovation on bank performance, specifically SWIFT (the Society for Worldwide Interbank

Financial Telecommunication. SWIFT is a messaging data carrier for interbank communications. The study covers over 7000 banks over a seven-year period – 1998 to 2005. According to the findings of the research, there is enough evidence to show that the adoption of SWIFT has a positive and significant relationship with profitability. This is partly due to reduction in transaction and operational costs. However, the returns are not realized immediately. It could take up to ten years to fully realize the benefits of SWIFT adoption. On the national or international level, the adoption of SWIFT has greatly improved international trade.

2.9 Conceptual Framework for the Study

The conceptual framework for this current study is derived from previous empirical studies that have highlighted the impact of customer loyalty, cost-to-income efficiency, customer lifetime value on financial performance and profitability of banks. Cost efficiency determines the extent to which operational performance is influenced by the adoption or integration of technology based solutions into the banking framework. As it is evident in literature, financial performance measurement indications such as return on equity, return on investment, return on assets are often used to assess the relationship between customer loyalty and customer satisfaction and financial performance and profitability (Keisidoue et al., 2013). In the views of Chi and Gursoy (2009), satisfied customers turn to be more loyal to the firms which translate into increased sales and financial returns. Hence the bank is assumed to increase its sales and financial returns when it utilizes innovative banking to generate greater values for customers (Jang et al., 2013), Van Doorn et al., 2013; Glaveli & Karassavidou, 2011). In effect, the key measurement of digital banking innovations effectiveness will be based on customer experience and satisfaction of digital banking services leading to customer retention then resulting in banks' competitiveness in determining its overall financial performance. This is depicted the Conceptual framework as shown in Figure 2.1

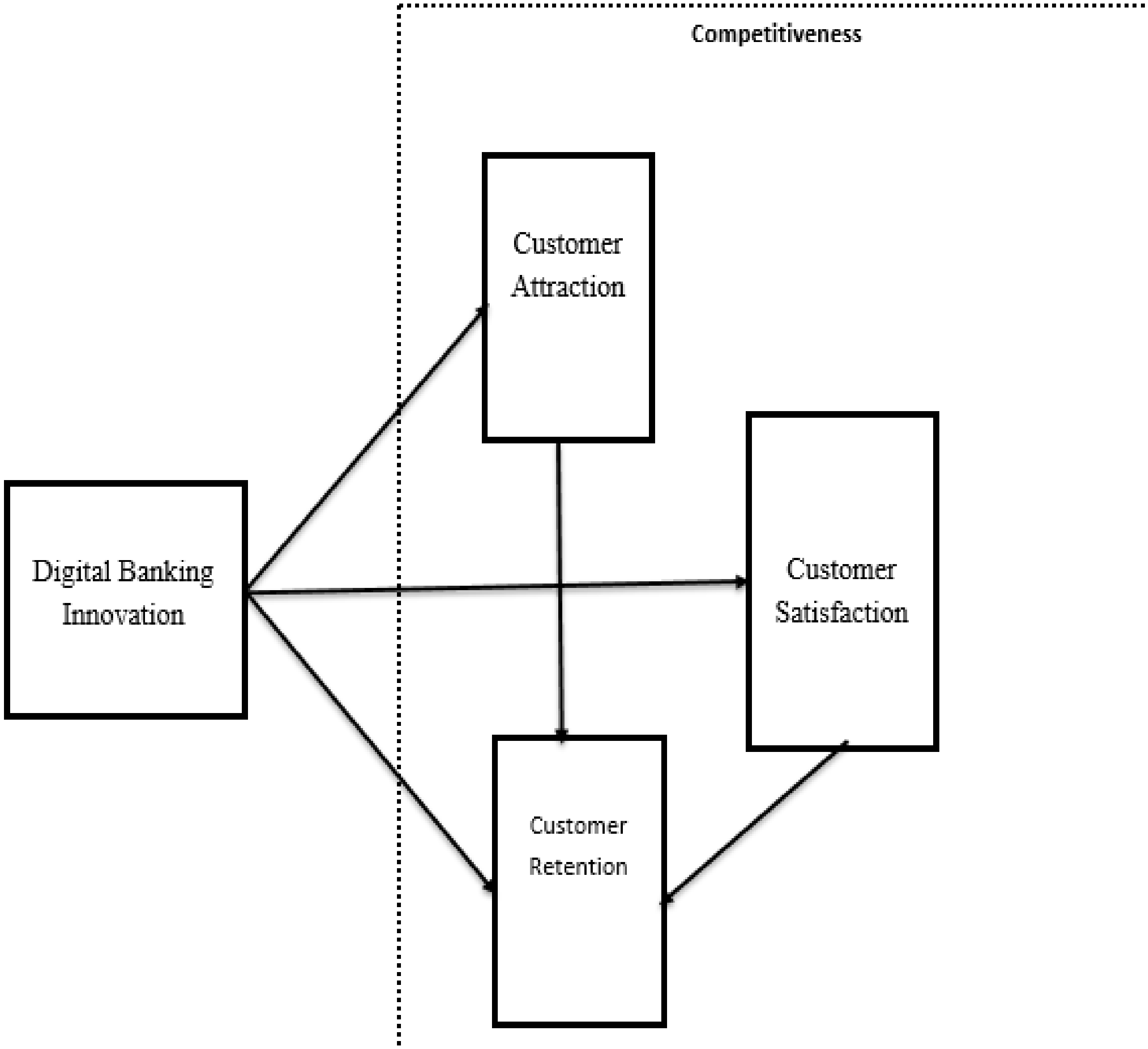

Fig 2.1: Conceptual Framework (Arthur's construct, 2020)

CHATER THREE

METHODOLOGY

3.1 Introduction

The aim of this chapter is to elaborate into detail the research method and methodology which were used for the study. This include research approach, research design, population of the study, sample and sampling procedure, research instrument, data analysis and presentation.

3.2 Research Philosophy

In research, paradigms play a very fundamental role. Saunders et al., (2009) describes a paradigm as a whole system of thinking. Paradigms are said to include, “theories, traditions, models, methodologies, and could even be seen as frameworks which guide the study. This philosophical standpoint of this current study was driven be the positivist viewpoint. This philosophy offered a more quantitative explanation to the effects of digital banking innovations on customer loyalty which ultimately translate into financial performance. Guba and Lincoln (1994) posit positivist research paradigm as an approach that aims at explain the relationship or predictive effects of certain variables on events and phenomenon in a quantitative manner. With this paradigm, the researcher had the opportunity to have first-hand information from respondents and categorized the responds to quantitative forms that allowed the research to establish the relationship between digital banking and the financial performance of firms.

3.3 Research Design

The research design alludes to the general master plan or approach that one can settle o in order to incorporate the different parts of the study in a logical way which will ensure the research problem is effectively addressed (Cooper & Schindler, 2008). The research design comprises of the blueprint for the collection, quantification and data analysis.

This study employed the descriptive survey design to arrive at its results. The descriptive design provides answers to what, who, when, how and where which are related to a specific research phenomenon. A descriptive study may not be able to readily provide answers to why. Descriptive research enables one to obtain information pertaining to the contemporary status of a problem and to be able to explain what exist in relation to the conditions of a problem (Bebli, 2013).

3.4 Research Approach

Creswell (2009) explained research approach as the plan that guides the direction of the researcher. According to Creswell (2009), research can be conducted from the inductive or deductive approach. Inductive research approach directs the research to develop an entirely new model, concept or principle. In effect, data are gathered in inductive research to develop new theories (Saunders et al., (2009). Deductive research approach on the other hand puts the findings of a study into the context of existing theories, concepts and models. In effect, deductive research approach leads to the texting of research hypotheses or assumption on the basis of existing theories (Saunders et al., 2009).

For the purpose of this study, the researcher applied a deductive research approach. This enabled the researcher to test the already existing theories about digital banking innovation and bank competitiveness.

3.5 Research Strategy

According to Creswell (2009) every research is underpinned by theory which translate into the motivation behind the study. Creswell (2009), opine that, research theories are often defined or subjected to testing to establish truth and fact through quantitative or qualitative research methods. Zikmund (2000) proposed two major approaches to carrying out research which include quantitative and qualitative research approaches. This current study employed the quantitative research approach. Quantitative research tries to achieve research objectives by employing numerical statistics. According to Creswell (2009), while there are two primary forms of research approaches, the researcher must be careful when selecting his or her research approach. In the views of Creswell (2009), every research approach must fit the context of the study. Quantitative research approach focuses on describing events and relationship by gathering numerical information and data which are subjected to mathematical methods of analysis (Creswell, 2009). While theories and motivating underpinnings of events and phenomena are based on truth findings, it becomes imperative to adopt a research approach which is mathematically objective hence the adoption of quantitative research approach for this current study (Saunders et al., 2009).

3.6 Population

Population for a study is considered as the possible study units who share similar features that are relevant for the collection of data and information for a particular study (Freedman et al., 1998). In the context of this current study, the population comprised of customers and staff of the sampled banks. These customers are those who have been with their respective banks for at least two years' reason been that they are more accustomed with the products and services they are offered and will be in a better position to identify factors that influence their choice of a particular e-banking product or service.

3.7 Sample Size

A sample of thirty (30) customers from each bank were conveniently selected. In all 150 customers were selected from five universal banks. They are GCB bank, Standard Chartered bank, Agricultural Development Bank, Ecobank, and Guaranty Trust bank. These universal banks were chosen primarily due to the availability and reliability of data because they are required statutorily to provide annual reports at the end of the year. The study therefore used data on the above selected universal banks to examine the effect of digital innovation on financial performance among universal banks in Ghana.

3.8 Sampling Procedures

The study made use of convenience sampling. The sampling technique was used due to its cost effectiveness, simplicity, and its short duration of implementation, (Saunders et al., 2007). Saunders et al., (2007), emphasize the main advantage of convenience sampling as its usefulness in the ability to document a phenomenon as it occurs, and to detect relationships among different phenomena. The main object of convenience sampling is to easily select and assess participants to be engaged. Notwithstanding the limitations of convenience sampling, the non-technical nature of the research topic makes the technique suitable for the study. The researcher included subjects that were available, and willing to engage to expedite the data collection process.

3.9 Data Collection Method

Data collection refers to the researcher obtaining the necessary information in order for the research problem to be answered. Data collection comprises of which data to collect, how to collect the data, who will collect the data and when to collect the data (Creswell, 2009) Research instruments are defined as tools or devices which are employed in the collection of data in order to facilitate observation and measurement (Saunders et al., 2009). This study employs the use of questionnaire as its research instrument. The use of questionnaire is cheaper and very fast to obtain. A questionnaire is defined as a set of organized questions with the basic aim of collecting data and these questionnaires are prepared in order to obtain responses to questions posed in them.

3.10 Data Analysis

Yin (1994) explained data analysis as the process of interpreting or deriving meaning from data that is gathered from study respondents. Yin (1994) continues to state that the primary goal of data analysis is to produce analytical interpretations from data gathered from the field for evidence based conclusions. The study examines the effect of digital banking on competitiveness among universal banks in Ghana. The independent variable employed to determine the competitiveness of the universal banks was digital banking innovation (such as the number of ATM's, the use of mobile technology, e-banking). Competition was the dependent variable. This was measured using customer attraction, customer satisfaction and customer retention as proxy. Three levels of analysis namely descriptive, bivariate (correlation) and regression were performed using the Statistical Package for Social Sciences (SPSS) software v.21. The analysis of data was done in congruence with the research objectives to establish the relationship between the independent variables and the dependent variables

3.11 Test of Validity and Reliability.

Validity is explained as the extent to which a research in instrument (in the context of this study; questionnaire) in consistent to give an outcome of what it is intended to measure. According to Creswell (2009) validity of research instrument lies in the extent to which the proposed instrument is able to give the expected outcome of what the research objectives intend to arrive at. Creswell (2009) recommends that, before the research instruments are sent to the field, they must be varied to correct all errors that could compromise the quality of data the study intends to gather from the field. In this regard, this current study ensured that the data collections instrument (close-ended questionnaire) passed the validity test by way of correcting all errors. The questionnaire was sent to the academic supervisor for review upon which some errors were raised and corrected.

Reliability on the other hand refers to the extent to which the utilization of the same data collection instrumentation could provide similar research outcome under similar research conditions. Reliability lays emphasis on the fact that research instruments must produce consistent research outcomes when applied in different studies that have similar research conditions (Saunders et al., 2007)). In simple terms, reliability confirms the trustworthiness of research instrument. According to Saunders et al., (2007) reliability is made up three components which include internal reliability, stability and inter-observer reliability. Reliability explains the extent to which is research instrument can render reliable and consistent outcome over time. Internal reliability explains the consistency that exist in the responses given by study participants while inter-observer reliability compares the responses of studies that have similar study variables. In order to ensure the reliability in this study, the data instruments were developed from existing literature that had similar study variables laid in this current study. The research instrument was also piloted at among customers of OmniBSIC Bank in Ashaiman.

3.11 Ethical Considerations.

It is a requirement that researcher adhere to the professional standards and ethics of conducting research. Issues of ethical consideration often are centered on confidentiality, anonymity and trust as well as integrity. Key considerations were given to these ethical issues in the context of this study. For example, the identities of the respondents were not disclosed while the respondents were also given the assurance that, the information and data especially those on the nutritional status would not be used for purely academic purposes and not for economic gains. As research require, all relevant materials that were used for the purposes of this study in the forms of literature review were acknowledge to avoid any apprehension of plagiarism.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents results of the analysis. It captures the characteristics of the respondents. Its provides analysis the level of digital banking technology usage, customer perception of digital banking, and the influence of digital banking on customer attraction, satisfaction and retention.

4.1 Characteristics of Study Respondents

The demographic characteristics of the respondents covering the sex of the respondents, age, education and years as bank customers are presented in Table 4.1. The results show male dominance with nearly two third (62.7%) of respondents being males while the remaining 37.3% are females. These results reflect the general dominance of males in Ghanaian banking population. There are more males with bank account as compare to females (World Bank, 2018), a situation that explains the dominance among the study participants. The results on the age of the respondents also show that half (50%) of the respondents were 20 to 30 years old and about 40 percent being 31 to 40 years. Only 10% of the respondents are older than 40 years indicating a relatively youthful age of the respondents. Since the youth are the most economical active population of Ghana (Ghana Statistical Service, 2014), it is understandable the respondents were mostly the youth.

On education, the results show that majority (54.7%) of the respondents have attained a bachelor's degree level followed by 21.3% who have masters' degree and the least 3.3% each who have SHS/WASSCE. The results show that the respondents are highly educated. On the professional occupation of the respondents, the result also shows that 46.7% of the respondents are business professionals 16.7% are business owners/self-employed whilst the least (5.3%) are medical and healthcare professional. This result equally shows that in term of profession, there is diversity among the respondents reflecting the general customer base of banks in Ghana. The study explored the number of years' customers had spent with their banks. The results indicate that, 42% of the study respondents had worked with their banks between 1-5 years whilst the next 35.3% had worked between 6-10years. Averagely most of the respondents had been with the bank for more than a year.

Table 4.1: Demographic Characteristics of the Respondents

	Response	**Frequency(N=150)**	**Percent (%)**
Sex	Male	94.0	62.7
	Female	56.0	37.3
Age	20-30 years	75	50.0
	31-40 years	60	40.0
	41-50 years	13	8.7
	51-60 years	2	1.3
Education	SHS/WASSCE	5	3.3
	Diploma/HND	26	17.3
	Bachelors	82	54.7
	Masters	32	21.3
	Other	5	3.3
Occupation	Business Professional	70	46.7
	Business Owner/Self Employed	23	15.3
	Medical/Healthcare Profession	8	5.3
	Government/Civil Servants	25	16.7
	Retired	5	3.3
	Full-Time Student	7	4.7
	Other	12	8.0
Years with Bank	Less than one year	5	3.3
	1-5 years	63	42.0
	6-10 years	53	35.3
	11-15 years	22	14.7
	21 years and above	7	4.7

Source: Field Survey (2020)

4.2 Usage of Digital Banking (Digital Innovation) of Banks

In determining the perception of the customers (respondents) towards digital banking, the usage of digital banking product and services by customers was first established. Thus, the results in Table 4.2 present a distribution of the respondents by digital banking product or service they used. As the results shows, the digital banking service used by most of the respondent was ATM (87.7%), followed by mobile banking (80.5%) and Internet Banking (78.6%) in that order. With the remainder, 42.9 percent use electronic transfer, 33.8 percent use telephone banking while 23.4 percent use credit card. The results show that there are multiplicity of electronic banking services and products that banks customers use with ATM being the most popular and widely used.

The level of usage of the different digital banking product and services reflect that of past studies in Ghana. Similar to the findings of this study, a study by Angko (2013) show that ATM is the most widely used digital banking services in Ghana, mobile banking and internet banking closely following. The popularity of ATM is due to the fact they emerge as the pioneering digital services in Ghana and mobile banking has also been made popular through the increasing proliferation of mobile devices and the mobile money revolution that have engulf Ghana in the last few years. Altogether, the high usage of digital banking service among the respondents means that their perception on digital innovation emerges from experiences and knowledge of digital banking products and services in the Ghanaian banking sector.

Table 4. 8: E-banking Services Provided by Respondents' Bank

E-banking Services	Frequency	Percent (%)
ATM Banking Services	135	87.66
Telephone banking	52	33.77
Credit Cards	36	23.38
Debit Cards	85	55.19
Mobile banking	124	80.52
Electronic transfers (EFTs)	66	42.86
Internet banking	121	78.57

4.3 Perception Towards Digital Banking and Products of Banks

Having established the experience of the respondents on digital banking, the study examines the perception that the respondents hold regarding digital banking services of their banks. A 5-point Likert scale was used to determine whether the respondents strongly disagree (1), disagree (2), were neutral (3), agree (4) or strongly agree (5) with various statement regarding digital banking. The mean ratings and relative importance index (RII) for each statement based on the responses provided are presented in Table 4.3. From the results it is clear that the respondents most agreed that e-banking enhance quality banking services (Mean=4.3, RII=0.86), eliminate long queue at bank (Mean=4.2, RII=0.83) and that emergence of electronic banking has made banking easier and cheap (Mean=4.1, RII=0.81). This result mean that customers perceived digital banking as platform that enhance quality banking, eliminate long queue at bank and banking easier and cheap. This observation is in consonant with studies such as Asare (2019) and Agolla (2018) that also found customers having positive view of electronic banking with respect to improving banking quality, faster service delivery and cheaper.

Other views the respondents have about electronic banking is that it leads to it satisfied their banking needs (Mean=4.0, RII=0.80), serve as convenient means of performing financial transaction (Mean=4, RII=0.9), offer secured services (Mean=4, RII=0.9), has other easy to use interface (Mean=3.8, RII=0.77) among others. The results show that overall the respondents have positive perception and view of digital banking services offered by their banks. The results thus confirm that banks' customers in Ghana have positive perception about the digital banking services offered by their banks. This observation is also shared in the study of Korankye (2014) and Asare and Sakoe (2015) who both concluded that digital banking services by banks in Ghana have earn positive perception and reputation among banks customers.

Table 4. 9: Customer Perception for E-banking products and Services

Statements	1	2	3	4	5	∑w	Mean	RII
E-banking has enhanced quality banking services offered to me	0	2	14	74	60	642	4.3	0.86
E-banking has eliminated long queue in my bank.	1	9	13	70	57	623	4.2	0.83
The emergence of electronic banking has made banking easier and cheap.	2	9	13	80	46	609	4.1	0.81
I am satisfied with the mobile banking, e-banking and other latest technologies offered by my bank to suit my needs.	2	4	18	96	30	598	4.0	0.80
I always use electronic banking services to perform my financial transaction.	3	9	21	73	44	596	4.0	0.79
I am happy with the security of e-banking services offered by my bank.	0	7	21	95	27	592	3.9	0.79
The e-banking bouquet offered by my bank online, has an easy user interface.	2	6	24	102	16	574	3.8	0.77
The e-banking platform provides prompt feedback to my queries.	3	9	31	84	23	565	3.8	0.75
The e-banking platform provides prompt feedback to my queries.	3	15	26	90	16	551	3.7	0.73
It is easy to reverse wrong transactions on my banks' e-banking platform.	10	45	31	55	9	458	3.1	0.61

Source: Field Survey (2020)

4.3 Effect of Digital Innovation on Competitiveness of Banks

The study explored the impact of digital innovation on competitiveness of banks in Ghana. The proxy measures of banks' competitiveness used include customer attraction, customer satisfaction and customer retention. A hypothesized Likert scale construct were used to measure level of digital innovation (DI), customer attraction (CA), customer satisfaction (CS) and customer retention (CR). An exploratory factor analysis was performed to confirm the structure of each of the construct measured as follows;

4.3.1 Exploratory Factor Analysis

Since multiple items construct were used to measured digital innovation (DI), customer attraction (CA), customer satisfaction (CS) and customer retention (CR), it was necessary to establish the extent to which the measured items reflect each construct using exploratory factor analysis. The exploratory factor analysis (EFA) was performed to established the extent to which the measured items correlated with the main construct (principal component) and therefore represented the constructs hypothesized. A principal component analysis approach with varimax rotation was used. The important parameters measured included the Bartlett's test of sphericity results indicate whether or not the constructs is an identity matrix whereas the KMO adequacy of the sample, factor loadings and variance explained. A cut-off factor loading of 0.3 was used based on recommendation of Kaiser (1974). Kaiser (1974) also indicated that KMO of 0.5 and significant Bartlett's test of sphericity is significant needed to establish each principal components.

The results for the four-construct showing their Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, Bartlett's test of sphericity is significant, variance explained, and factor loadings are presented in Table 4.4. The results show that all five (5) items on digital innovation loaded strongly on the construct with KMO of 0.788 and significant Bartlett's test of sphericity ($\chi 2(10) = 263.834$, $p<0.0001$). This is an indication that all the five (5) hypothesis items are strongly correlated and represented the construct on digital innovation. Similarly, the construct on customer attraction also has KMO of 0.06, significant Bartlett's test of sphericity ($\chi 2(10) = 245.136$, $p<0.0001$) and all its items load strongly with the construct indicating their appropriateness as items on the construct "customer attraction".

The results of the PCA also show that the construct for customer satisfaction also has significant Bartlett's test of sphericity ($\chi 2(10) = 255.782$, $p<0.0001$), acceptable KMO (0.799) and all factors load strongly on the constructs. This also means that the five (5) items are appropriate and suitable measure of customer satisfaction. With customer retention however, two (2) of the items (CR1 and CR2) load poorly on the construct and therefore were excluded as appropriate measure of the construct. The remaining three (3) loaded strongly with factor loading between 0.875 to 0.917 with KMO of 0.735 and significant Bartlett's test of sphericity ($\chi 2(10) = 254.500$, $p<0.0001$). In this case item CR1 and CR2 are eliminated as measures of customer retention.

Table 4. 10:Construct Purification and Exploratory Factor Analysis

	Factor loading	*Total Variance (%)*	*KMO*	*Bartlett's Test of Sphericity*	*df*	*p*
Digital Innovation		***59.2***	.788	263.834	***10***	***0.000***
DI1	.688					
DI2	.844					
DI3	.785					
DI4	.801					
DI5	.720					
Customer Attraction		55.5	.706	245.136	***10***	***0.00***
CA1	.712					
CA2	.700					
CA3	.705					
CA4	.779					
CA5	.822					
Customer Satisfaction		58.4	.799	255.782	***10***	***0.000***
CS1	.754					
CS2	.733					
CS3	.828					
CS4	.742					
CS5	.762					
Customer Retention		81.4	**0.735**	254.500	***1***	***0.000***
CR1						
CR2						
CR3	.875					
CR4	.913					
CR5	.917					

Source: Field Survey (2020)

4.3.2 Reliability and Validity Analysis

After establishing the factor structure and items for each construct, reliability analysis based on Cronbach's alpha was performed to determine the validity and reliability of the measured construct. The Cronbach alpha showing the level of internal consistency and reliability of the hypothesized construct are presented in Table 4.5. Although there is no "hard-and-fast rule on the acceptable threshold for the Cronbach alpha, the higher the Cronbach alpha value the better the level of internal consistency and reliability. Gliem and Gliem (2003) have noted that

Cronbach alpha co-efficient of 0.5 or higher is needed to indicate the validity of multi-item constructs. George and Mallery (2003) have established Cronbach alpha classification criteria for acceptance as follows; "_ > 0.9 – Excellent, _ > 0.8 – Good, _ > 0.7 – Acceptable, _ > 0.6 – Questionable, _ > 0.5 – Poor, and_ < 0.5 – Unacceptable".

Based on the results of this study, the level of validity and reliability of the construct "digital innovation" can be described as 'good" given that the Cronbach alpha co-efficient is 0.82. Likewise, customer satisfaction and customer retention given their Cronbach alpha of 0.817 and 0.885 respectively. On the contrary given the Cronbach alpha of 0.796, the reliability of the construct for customer retention is described as acceptable.

Table 4. 11: Reliability Analysis of Measured Constructs

Construct	Number of items	Cronbach Alpha	Interpretation of Reliability
Digital Innovation	5	0.820	Good
Customer Attraction	5	0.796	Acceptable
Customer Satisfaction	5	0.817	Good
Customer Retention	3	0.885	Good

Source: Field Survey (2020)

4.3.3 Descriptive Analysis

The study also analysed and present descriptive analysis of the measured constructs, that is digital innovation, customer attraction, customer satisfaction and customer retention in Table 4.6. The results are based on responses by the respondents to a 5-point Likert scale construct defined as 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree that was administered to the respondents of the study. The results presented include the mean score for each items and the constructs as a whole and their respective standard deviations. In the first place, the results show that with regards to digital innovation, the respondents most agreed that mobile banking apps introduced their bank has made money transfers easier and faster (Mean=4.0, SD=0.868), development and usage of easy-to-use online payment and mobile banking platforms (Mean=3.9, SD=0.849) and that banks offer range of E-banking products and services using different technologies (Mean=3.8, SD=0.844). The respondents also agreed that their almost all their banks products and services can be accessed via a digital means (Mean=3.5, SD=1.08). These results imply that digital innovation of banks in Ghana are characterized by the use of mobile and online banking and other technologies that ensure almost all products and services of the banks are offered digitally.

With regards to customer attraction, the results show that the respondents most agreed that they access service of their banks anywhere and anytime (Mean=3.9, SD=1.002), follow by the that they always get ATMs services wherever they go (Mean=3.8, SD=1.069) and that they are attracted to their banks because it has branches all over the country (Mean=3.7, SD=1.032). The respondents also agreed that they like the way their bank advertised its products and services (Mean=3.6, SD=0.923) but neutral that their bank offers promotions and advertisements on its products and services which encourages me (Mean=3.3, SD=1.115). The results show that the customer attraction features of the selected banks include the availability of their services anywhere and anytime, availability of ATM services and branches of banks nationwide.

In terms of customer satisfaction, the results also show several aspects of banks that resulted in customer satisfaction. Among the statements the respondents indicated that overall, they are satisfied with the banking services offered to them by their bank (Mean=4.0, SD=0.723); happy with the digital applications used by their bank (Mean=3.9, SD=0.741) and that they are satisfied with the sincerity with which their bank employees resolve their issues (Mean=3.9, SD=0.801).

The results further show the respondents they are happy with the products and services offered my bank (Mean=3.7, SD=0.848) and that they are satisfied with the quick responses their bank offers to their queries (Mean=3.7, SD=0.867). This results show that respondent's satisfaction with their banks are high and underpinned by the services they offer, digital applications used, employee's sincerity and timeliness of responses. These elements of customer's satisfaction with the banks in this study reflect theoretical and empirical concepts of banks customer satisfaction. According to Ishmuhametov (2017) customer's satisfaction with banks is bank on the services offered, how it is offered and support services that follow the services. With regards to Customer retention, the results show a rather low to average indication of customer retention. The results indicate that the respondents were neutral regarding whether they have long term relationship with their banks (Mean=2.7, SD=1.154) and that they would not like to leave their bank in the near future (Mean=2.7, SD=1.20)

Table 4. 12: Descriptive Analysis of Digital Innovation, Customer Attraction, Customer Satisfaction and Customer Retention

Descriptive Statistics					
	Statement	Min	Max	Mean	SD
	Digital Innovation			**3.7**	**0.907**
DI3	The mobile banking AP introduced by my bank has made money transfers easier and faster	1	5	4.0	0.868
DI2	I find it easy to use my banks' online payment and mobile banking platforms	1	5	3.9	0.849
DI4	My bank offers a wide range of E-banking products and services using different technologies.	1	5	3.8	0.844
DI5	Almost all of my banks' products and services can be accessed via a digital means.	1	5	3.5	1.038
DI1	My banks' E-banking bouquet suit all my banking needs	1	5	3.4	0.937
	Customer Attraction			**3.6**	**1.028**
CA5	With my bank I can bank anywhere and anytime	1	5	3.9	1.002
CA3	I always get ATMs services wherever I go using my bankcards	1	5	3.8	1.069
CA4	I want to be with my bank because it has many branches in the country	1	5	3.7	1.032
CA1	I like the way my bank advertised its products and services	1	5	3.6	0.923
CA2	My bank offers promotions and advertisements on its products and services which encourages me.	1	5	3.3	1.115
	Customer Satisfaction			**3.8**	**0.796**
CS5	Overall, I am satisfied with the banking services offered to me by my bank.	1	5	4.0	0.723
CS3	I am happy with the digital applications used by my bank to provide services to me	2	5	3.9	0.741
CS4	I am satisfied with the sincerity with which my bank employees resolve my issues.	1	5	3.9	0.801
CS1	I am happy with the products and services offered my bank	1	5	3.7	0.848
CS2	I am satisfied with the quick responses my bank offers to my queries.	1	5	3.7	0.867
	Customer Retention			**2.607**	**1.211**
CR3	I do not have a long-term relationship with my bank	1	5	2.7	1.154
CR5	I would like to leave my bank in the near future	1	5	2.7	1.2
CR4	I will not recommend my bank to other people	1	5	2.5	1.278

Source: Field Survey (2020)

4.3.4 Correlation Analysis

A correlation analysis was performed to determine the relationship between digital innovation, customer attraction, customer satisfaction and customer retention. From the results of the correlation analysis presented in Table 4.7, it shown that digital innovation is positively and significantly correlated with customer attraction ($r=0.699$, $p<0.01$) and customer satisfaction ($r=0.664$, $p<0.01$) but not significantly correlated with customer retention ($r=0.112$, $p>0.05$). This results means that as digital innovation increases, customer attraction and customer satisfaction increases. The results further show that customer attraction and customer satisfaction are positively correlated ($r=0.619$, $p<0.01$) whereas customer attraction and customer retention are also positively correlated ($r=0.181$, $p<0.01$). The significant correlation between the in digital innovation and customer attraction, and customer satisfaction show linear relationship exist between the independent variable and dependent variable is met and therefore linear regression can be performed. Although significant correlation among the independent variables is significant, none of the correlations is strong enough to raise concerns of multicollinearity. According to Yoo (2014) correlations co-efficient of 0.8 or higher is an indication of multicollinearity. Considering that the correlations among the independent variables are all lower than 0.8, the possibility for multicollinearity can be ruled out.

Table 4. 13: Bivariate correlation between study variables

	1	**2**	**3**	**4**
1. Digital Innovation	1.000			
2. Customer Attraction	0.669**	1.000		
3. Customer Satisfaction	0.664**	0.619**	1.000	
4. Customer Retention	0.112	0.181*	0.137	1.000

Source: Field Survey (2020) ****p<0.001; **p<0.01; *p<0.05*

4.6 Regression Analysis

Following the correlation analysis, regression analysis was performed to find out the digital innovation on customer attraction, customer satisfaction and customer retention. The results of the regression analysis as presented in Table 4.8 show that digital innovation has positive and significant effect on customer attraction ($\beta=0.750$, $p<0.001$) and then on customer satisfaction ($\beta=0.583$, $p<0.001$). This result means that a unit increase in digital innovation result in 0.750-unit increase in customer attraction and 0.583-unit increase in customer satisfaction. The results as presented in Table 4. 7 further show that no other significant effect existed between digital innovation and customer retention nor customer satisfaction and retention. This means that digital innovation has no direct effect on customer retention. This is in contrast with studies by Martins et al., (2014) and Zhou (2012) that found digital banking as a way for banks to offer good customer services and retain customers. The findings of this study could be associated with other factors that influence customer retention such as service quality, trust and commitment (Salama, S. Alkitbi, Muhammad A, Barween Al Kurdi and Said A. Salloum, 2020).

The positive effect of digital innovation on customer attraction is explained by the fact that digital innovation leads to customer value creation which lead to customer attraction (Kanwal and Yousaf, 2019). Asare (2019) in a study in Ghana also found that digital innovation in Ghana characterized by ATM service, internet banking, mobile banking among others improve core employee services, customer accessibility service, communication service and price quality service that result in customer satisfaction. Agolla et al (2018) banks can improve the competitive environment by understanding and exploring the potential in digital innovation for attracting, satisfying, and retaining customers.

Evidence from this study contrast that of studies such as Ameme &Wireko (2016) who found that digital innovations come with additional cost that are often passed on customers and therefore expect negative impact. The contrast result from the fact that customers perceived the benefits and convenience associated with digital innovative technologies to be higher the cost passed on to customers. As noted earlier, customers are attracted to banks with the available services anywhere and anytime and therefore grant reliable access to banking services. Customer satisfaction with banks is also found to be underpinned by the services they offer, digital applications used, employee's sincerity and timeliness of responses. Thus, while cost of digital product and services may be disadvantageous to customers, their attraction and satisfaction is largely influence by the convenience, reliable and timely banking services that digital technologies offer.

Table 4. 14: Effect of digital innovation on customer Attraction, Satisfaction and Retention

			Estimate	**S.E.**	**C.R.**	**P**
CS	<---	DI	.583	.054	10.896	***
CA	<---	DI	.750	.068	11.016	***
CR	<---	CA	.117	.095	1.231	.218
CR	<---	DI	-.053	.127	-.418	.676
CR	<---	CS	.104	.118	.877	.381

Source: Field Survey (2020) ****p<0.001; **p<0.01; *p<0.05*

Digital innovation (DI), customer attraction (CA), customer satisfaction (CS) and customer retention (CR)

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a summary of findings, conclusions and recommendations of the study in line with the objectivesof the study, under four sub-headings; summary of major findings, conclusions, policy recommendations, and recommendations for further studies.

5.2 Summary of Main Findings

5.2.1 Digital Banking Product and Service Usage

The study examined the level of usage of digital banking product and services by the respondents. The findings reveal that the digital banking product and services use by the respondents include ATM Banking Services, Telephone banking, Credit Cards, Debit Cards, Mobile banking, Electronic transfers (EFTs) and Internet banking. Among these services and products however, ATM, mobile banking and Internet Banking were the most popular and widely used.

5.2.2 Perception about Digital Banking (Digital Innovation) of Banks

With regards to the respondent's perception about digital banking, the findings show that the respondents acknowledge that e-banking enhance quality banking services, eliminate long queue at bank and that emergence of electronic banking has made banking easier and cheap among other positive views. Other positive perception about digital banking is that it satisfied their banking needs, serve as convenient means of performing financial transaction, offer secured services, has other easy to use interface (Mean=3.8, RII=0.77) among others. The findings however noted also respondents did not agree that e-banking platform provides prompt feedback to their queries and that it easy to reverse wrong transactions on their banks' e-banking platform.

5.2.3 Effect of Digital Innovation on Competitiveness

With regards to the effect of digital innovation on competitiveness of banks in Ghana, customer attraction, customer satisfaction and customer retention were used as proxy measure of competitiveness. From a regression analysis it was found that digital innovation has positive and significant effect on customer attraction and then on customer satisfaction. This result reveal that a unit increase in digital innovation result in 0.750-unit increase in customer attraction and 0.583-unit increase in customer satisfaction. No significant effect existed between digital innovation and customer retention nor customer satisfaction and retention. This means that digital innovation has no direct effect on customer retention.

5.3 Conclusion

The study was underpinned by the realization that despite the innovative potential of digital banking, it effects on banks competitiveness in terms of customer attraction, satisfaction and retention require scrutiny in Ghana. The study therefore examined the level of digital banking products and service usage, perception about digital banking and the effects of digital innovation on customer attraction, satisfaction and retention. The findings show that there is high level of usage of digital banking products and services especially ATM, mobile banking and internet banking. Digital innovation of the banks was also found to have significant positive effect on customer attraction and satisfaction. The study conclude that digital banking provides an opportunity for banks to innovate, attract and satisfy their customers

5.4 Recommendations

There is the need for banks to recognized and exploit the innovation potential of digital banking to improve customer value, enhance customer attraction and satisfaction. As the results shows, digital innovation positively and significantly influence customer attraction and satisfaction.

Therefore, banks can improve their market share by adopting digital technologies that result in customer attraction and satisfaction.

The study found customer retention to be low and unexplained by digital innovation. This means that additional measures need to be examined and implemented by banks to enhance customer retention. Attraction and satisfying with digital technologies alone provide inadequate guarantee of customer retention as the results has shown. It is therefore recommended that customer retention strategies beyond digital innovations needs to be put in place.

5.5 Research Contribution to Knowledge and Practice

The study adds to existing body of literature on the relationship between digital banking innovation and performance of banks in general. Although there is a large body of literature on this subject matter and other related studies, few studies have assessed the established the relationship between digital banking and bank competitiveness. Also this study contributes to literature using customer satisfaction, customer attraction and retention as constructs to measure competitiveness of banks.

In practice, the study will serve as a guide for bankers, bank managers and all relevant decision makers to adequately understand and appreciate the impact of Information and Communication Technology on performance and adopt modern technologies that will make their banks have competitive edge over others. Banks can use digital innovation to differentiate themselves, create new services and value, improve customer retention and attraction, which increase their profit. Banks should focus more on developing a unique value proposition to acquire customers, offer value-added services and stay competitive. They can adapt their strategy around serving different customer segments well and offering them good services, with appropriate customer experience attributes. The study will also serve as a strategic guide for national development as banks enhance digital banking innovation in their operations which in the end will promote economic and social growth.

5.6 Limitations and Directions for Future Research

This study focused on digital banking innovation and its impacts on bank competitiveness in Ghana. This was assessed solely from the perspective of the customers. By this competitiveness was measured using three indicators as customer attraction, customer satisfaction and customer retention. The research used analysis results from questionnaire data collected from five bank customers. There is a possibility that the scope can be enlarged and tested further. Further studies could explore the cost incurred on digital banking innovation and bank competitiveness using secondary data from respective banks. This will explore variations in investments on digital banking innovations and competitiveness in the performance of banks. In addition, further research is needed to understand the applicability of the framework used in this study to other organizations like insurance firms, and assess other factors that could be added.

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APPENDIX A

CHRISTIAN SERVICE UNIVERSITY COLLEGE, KUMASI

(BACHELOR OF BUSINESS ADMNISTRATION IN ACCOUNTING)

QUESTIONNAIRE

We are students of Christian Service University undertaking a project work on the topic: "***Impact of digital banking innovations on competitiveness of universal banks in Ghana***". This study is purely for academic purpose and your responses would be kept confidential. You are kindly encouraged to participate in answering the questions completely and honestly. Thank you.

Kindly tick (√) the response that you think is most appropriate to each question and indicate your response in the space provided.

SECTION A: Demographic Characteristics

1. What is your Age:

20-30 years [ ]
31-40 years [ ]
41-50 years [ ]
51-60ears [ ]
61 years and above [ ]

2. What is your Gender

Male [ ]
Female [ ]

3. Number of years you have banked with the bank

Less than one year [ ]
1-5 years [ ]
6-10 years [ ]
11-15 years [ ]
16-20 years [ ]
21 years and above [ ]

4. What is your highest academic qualification:

SHS/WASSCE [ ]

Diploma/HND [ ]
Bachelors [ ]
Masters [ ]
PhD [ ]
Other [ ] Specify…………….

5. Kindly indicate your profession ……………………………………

SECTION B: Perspectives of Customers on Digital Banking in Ghana

6. Please kindly tick (√) your level of agreement or disagreement with the following statement below, ranging from the lowest **1** – Strongly Disagree **(SD)**, **2** – Disagree **(D)**, **3** – Neutral **(N)**, **4** – Agree **(A)**, and to the highest **5**- Strongly agree **(SA)**.

No.	**Statement**	**1**	**2**	**3**	**4**	**5**
1	E-banking has enhanced quality banking services offered to me					
2	E-banking has eliminated long queue in my bank.					
3	I always use electronic banking services to perform my financial transaction.					
4	The emergence of electronic banking has made banking easier and cheap.					
5	I am happy with the security of e-banking services offered by my bank.					
6	I am satisfied with the mobile banking, e-banking and other latest technologies offered by my bank to suit my needs.					
7	The e-banking website is easy to access and navigate at all time.					
8	The e-banking platform provides prompt feedback to my queries.					
9	The e-banking bouquet offered by my bank online, has an easy user interface.					
10	It is easy to reverse wrong transactions on my banks' e-banking platform.					

SECTION C: Digital Banking Technologies Adopted by Banks in Ghana

7. In general, what do you feel about E-Banking as a new system of delivering banking services?

Essential [ ]
Desirable [ ]
Cannot say exactly [ ]

Any other [ ] (Please specify)…………………………………………………

8. Which of the following E-banking services are provided by your bank (tick all that apply)?

ATM Banking Services [ ]
Telephone banking [ ]
Credit Cards [ ]
Debit Cards [ ]
Mobile banking [ ]
Electronic transfers (EFTs) [ ]
Internet banking [ ]
Any other [ ] (Please specify)…………………………………………………

9. How did you hear about the E-banking services your bank provides? (Tick all that apply)

Through bank officials [ ]
Advertisement in Print Media [ ]
Television and Radio Advertisement [ ]
On-line Advertisement [ ]
Any other [ ] (Please specify)…………………………………………………

10. Do you agree E-banking has a positive effect on your bank's performance?

Strongly agree [ ]
Agree [ ]
Neither agree nor disagree [ ]
Disagree [ ]
Strongly disagree [ ]

11. Which of these methods are used to encourage you to use E-banking? (Tick all that apply)

Make them cheaper by reducing charges and fees [ ]
Incentives to E-banking users [ ]
Intensive advertisement [ ]
Contacting every customer personally [ ]
Keep on reminding customers through written communication [ ]
Demonstrating on how to use services to them [ ]
Giving them guarantee of security and privacy [ ]
Giving the technological knowledge to customers through seminars [ ]

SECTION D: Digital Banking Innovations and Competitiveness of Universal banks

Please kindly tick (√) your level of agreement or disagreement with the following statement below, ranging from the lowest **1** – Strongly Disagree **(SD)**, **2** – Disagree **(D)**, **3** – Neutral **(N)**, **4** – Agree **(A)**, and to the highest **5**- Strongly agree **(SA)**.

No.	**Digital Banking Innovation**	**1**	**2**	**3**	**4**	**5**
1	My banks' E-banking bouquet suit all my banking needs					
2	I find it easy to use my banks' online payment and mobile banking platforms					
3	The mobile banking AP introduced by my bank has made money transfers easier and faster					
4	My bank offers a wide range of E-banking products and services using different technologies.					
5	Almost all of my banks' products and services can be accessed via a digital means.					
	Customer Attraction.					
6	I like the way my bank advertised its products and services					
7	My bank offers promotions and advertisements on its products and services which encourages me.					
8	I always get ATMs services wherever I go using my bankcards					
9	I want to be with my bank because it has many branches in the country					
10	With my bank I can bank anywhere and anytime					
	Customer Satisfaction					
11	I am happy with the products and services offered my bank					
12	I am satisfied with the quick responses my bank offers to my queries.					
13	I am happy with the digital applications used by my bank to provide services to me					
14	I am satisfied with the sincerity with which my bank employees resolve my issues.					
15	Overall, I am satisfied with the banking services offered to me by my bank.					
	Customer Retention					
16	I am having a long-term relationship with my bank					
17	I would like to continue doing business with my bank even if my problem is not resolved.					
18	I do not have a long-term relationship with my bank					

19	I will not recommend my bank to other people					
20	I would like to leave my bank in the near future					