THE IMPACT OF DIGITAL INNOVATION ON FINANCIAL PERFORMANCE OF FOREX BUREAUS IN KENYA

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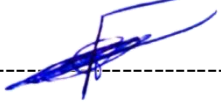
2022

DECLARATION

I declare that this research project is my original work and has not been presented anywhere for the award of any degree in any other college/university.

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DEDICATION

This project is dedicated to my wife, Anne Wangui, Son James Gakuru and daughter Bridgette Wanjiru for the prayer, encouragement and all the support they have continued to give me in my entire life of the study.

ACKNOWLEDGEMENT

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ABSTRACT

The role of digital innovations on efficiency, and cost reductions in the financial services sector is paramount to the profitable service delivery and competitiveness of firms in the industry. Financial service providers such as banks have continued to use huge investments in digital innovations to handle new technologies and service delivery. Yet, the adoption of digital innovations in the context of Forex Exchange bureaus lack. None of the available studies focused on the impact of digital innovations on the performance of Forex Exchange Bureaus. The main objective of this study was therefore to explore key digital innovations adopted in Forex exchange bureaus and their effect on the performances of Forex Exchange Bureaus. The specific objective of this study was to determine the impact of digital innovations on the financial performance of Forex bureau firms in Kenya. The research problem was studied through quantitative research and used questionnaire method to collect primary data. Due to their limited number, the target population was registered in Forex Exchange Bureaus in Kenya. The study used descriptive and inferential statistics SPSS and presented using means, standard deviation and frequencies. From the findings, the key digital innovations adopted by Forex Exchange Bureaus included electronic money transfer, online trading platforms, mobile applications and automated office automation. The study concludes that the adoption of digital innovations affected the performance of Forex Exchange Bureaus. Specifically, office automation was the most common innovation adopted to facilitate operations of Forex Exchange Bureaus, which consequentially enhanced their financial performance through cost reductions. The other necessary innovation was Mobile applications. They were significantly important for customer care, facilitating monitoring of accounts and access to quotes and enhancing the operations of the Forex Exchange bureaus as a result. In relation to electronic money transfer, the use of this digital innovation expanded commission and interest-based payment and significantly increased the overall income of Forex Exchange Bureaus. The study recommends that for Forex Bureaus to be highly competitive, they need to employ modern technological innovations particularly automated office operations and mobile applications to grow their customer base as one of their key strategic priority which will eventually contribute to the financial performance and growth of these firms.

LIST OF ABBREVATIONS

ATM   Automated Teller Machine

CBK   Central Bank of Kenya

FX   Forex

ROA   Return on Assets

ROE   Return on Earnings

TAM   Technology Acceptance Model

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The ability to innovate is widely considered a key determinant to creating a unique competitive position and sustaining a competitive advantage for firms. In today's business environment, much emphasis is increasingly being placed on building innovative organizations and innovative management as a key determinant for corporate growth and survival (Janjić and Rađenović, 2019). Accordingly, innovation is viewed lifeblood of organization survival (Corporate Compliance Insights, 2019). In the financial services industry, innovation is seen as a process whereby firms generate and promote new technologies, new financial instruments, or institutions simplify information, trading, or payments (World Bank, 2014). Moreover, innovation in the context of the financial service industry can be regarded as a process of developing new products or processes to assist in cutting down the production expenses of an existing financial service offering (World Bank, 2014). Innovations, especially in the financial service industry are reinforced by financial developments and electronic market responses. In their study, Yildirim and Philippatos (2007) found that there always exists fierce rivalry amongst financial services providers, especially banks, which in turn pressurizes them to compete fiercely in terms of service offerings. As a result, these firms come up with financial service innovation. The study also found that due to high competitiveness levels in the financial industry, financial service providers will want to enhance the quality of what differentiates and cut edge for them from their rivals in providing services. Therefore, they focus on new skills development and adoption of financial technologies, which leads to digital innovations in the financial services industry as a result.

This study was based on several theories that relate to the topical issue under study. They include innovation diffusion theory, technology acceptance model, Transaction-Cost innovative theory task, and technology fit theory. Innovation diffusion theory of innovation insists that the adoption of innovation is mostly pegged on the users' ability to perceive that idea, product and behavior as novel or new (Kaminski, 2011). This drives the innovation diffusion process. The adoption of digital innovations such as electronic trading and money transfer has practically evolved through the innovation diffusion theory. Different players in the financial services industry are at different stages as far as this adoption is concerned. Resultantly, this plays a critical role in explaining the adoption of digital innovations in the Forex exchange industry.

Task technology fit theory suggests that there is a possibility that information technology (IT) adoption can produce positive results to the individual provided that the adopted IT capabilities matches the task which the users seek to address (Kuo, and Lee, 2011. This means that the success of a task is only possible if the user adopts appropriate technology to undertake the intended task. In the context of the current study, this theory aid in explaining the technological systems performed by forex exchange bureaus. If such innovations prove to be a good match, the Forex bureaus can then adopt other innovations to enhance their performance. The technology Acceptance model explains how users adopt and embrace innovations (Godoe and Johansen, 2012). This theory insists that the adoption of innovation will depend on the comprehension of users' requirements concerning its usefulness and friendliness (Chuttur, 2009). The transaction-Cost innovative theory insists that the sole purpose of financial innovations is to reduce a firm's operational costs and profit maximization (Hicks and Niehans, 1983). In the context of this study, this theory aids in explaining the key factors that may influence innovation in the Forex exchange industry.

While digital innovations are not new to other financial service industries such as the banking industry, there are limited technological disruptions in the Forex exchange industry. Despite its size and liquidity, the industry has remained largely immune to technological disruptions (Future of Finance, 2021. According to Future of Finance (2021), the main reasons for this include their global scale, fragmented structure and lack of over-arching regulatory systems and the domination of the Forex market by an oligopoly of large banks. The digital innovations in the Forex exchange industry are largely happening outside the incumbent commercial banks that have traditionally dominated the industry (Future of Finance, 2021). While some forms of innovations enabling real-time execution times are still happening and consequently redefining the roles of major FX players, inertia in innovation remains a key challenge affecting change in the industry. The peculiar lack of technological disruptions is what sparked my interest to undertake this study.

1.1.1 Digital innovations

Digital innovations have been a core of how firms, especially in the financial sector operate and maintain a competitive edge in the challenging and highly competitive business environment. The adoption of new digital innovations is intensified by technological innovations. Technological innovations within the financial services industry have the objective of widening the market share of particular financial service providers and fastening service delivery. Carr and Carr (2004) suggest that the competitive advantage distinctiveness of financial institutions can be known based on successful innovations, as this places them in a distinct competitive edge over their rivals. Any profit-seeking firm is encouraged to adopt technological financial innovations that are directed at profit maximization and cutting down operational costs. Further, Krawish and Al-Sadi (2011) argued that innovations such as ATM technology, internet and agency banking

significantly reduced overhead costs and enhanced bank profitability. Gutu (2014) supports this argument. In their study about the Romania banking industry, Gutu (2014) showed that the adoption of technological innovations significantly reduced operations and lead to enhanced bank revenues.

Contextually, technological innovations have been greatly adopted and embraced by financial service providers, especially the banking sector in Kenya. Among the key forms of digital innovations within the financial sector includes mobile banking, ATM banking and internet integration technologies (Krawish and Al-Sadi, 2011). However, key digital disruption is lacking in the Forex exchange industry. As aforementioned, despite its sheer size and importance, the foreign exchange market has remained largely immune to major digital technological disruptions. However, a report by UKTN (2021) showed that fierce competition has been driving digitalization as players seek to gain a competitive edge over rivals in the Forex exchange sector. With improvements in innovative technologies, players in the Forex industry can now deliver solutions to improve trading and customer experience, reduce trading costs as well as streamline trading processes (UKTN, 2021).

1.1.2 Financial performance

Financial performance describes how well a firm is faring in terms of how well it creates and enhances its shareholders' value. According to Bagnoli and Megali (2011), financial performance can also be regarded as a subjective measure of the usage of a firm's assets in its pursuit to earn revenues.

Firms use a combination of financial ratios and other financial indicators to measure financial performance. Among the key financial ratios used include Return on Assets (ROA), Return on

Equity (ROE) (Delen et al., 2013). ROA is the measure of return from firm-owned assets, implying that the greater the value the greater the profitability and vice versa. ROE is the financial ratio that measures the proportion of profit a firm makes from the equity invested by its shareholders (Delen et al., 2013). Other financial indicators used in measuring financial performance include market share and net revenues (Barnett and Salomon, 2012). This study has operationalized financial performance by using ROA and net profit as the key financial performance indicators.

1.1.3 Forex bureau exchange sector in Kenya

Following foreign exchange bureau licensing in Kenya in 1995, there has been witnessed some notable development and vibrancy in Kenya's foreign exchange market. During the period before 1995, there existed various restrictions on foreign exchange currency transactions (Ndung'u, 2001). However, these restrictions were eliminated following the repeal of the Foreign Exchange Control Act 1995 and subsequently licensing of the Forex exchange bureau under the Central Bank (CBK) of Kenya Amendment Act of 1995. The main objective of the new licensing regime under the Central Bank of Kenya was to make the foreign exchange trading in the country more competitive (Ndung'u, 2001).

Currently, Kenya operates a floating exchange rate system, whereby forces of demand interplay with supply market forces to determine the value of foreign currency exchanges (Ndung'u, 2001). Today, the major participants in this market include commercial banks and foreign exchange bureaus. Other participants include institutional investors and firms as well individual clients who often contact their broker or bank to obtain foreign currencies. According to the Central Bank of Kenya directory, there were 74 licensed foreign exchange bureaus as of August 2021 (Central Bank of Kenya, 2021).

One of the key innovations that have transformed the foreign exchange industry was the entry of internet integration into the industry. Integration of the internet into the Forex exchange market has significantly increased the speed, accuracy and transparency of foreign exchange trading (Waithaka, 2018). The lack of speed, accuracy, and transparency was considered as the biggest impediments to foreign exchange trading, especially in the Kenya context. Globally, foreign exchange traders have skyrocketed since internet technology in the 1970s (Ndung'u, 2001). The rapid growth of foreign exchange traders in 1996 and 2017 is attributable to the integration of the internet into mobile devices leading to the subsequent increase in online trading. However, Waithaka (2018) quips that in Kenya; the rise of online trading following internet integration into the industry cannot be accounted for. In this respect, this study seeks to assess the effects that digital innovations mainly propelled by the internet have had on the performance of Forex exchange bureaus.

1.2 Research Problem

Digitalization of services has become an important emerging concept due to its potential to affect its up and downstream operations; and eventually the financial position of firms (Kohtamäki, Parida, Patel & Gebauer, 2020). The digitalization era revolves around the application of new technologies to offer a host of benefits and create value for firms through the adoption of a digital eco-system involving multi-channel, data management, platforms, artificial intelligence and related infrastructure, which in total is expected to influence the financial position of the firms. A firms value is expected to be affected by digital innovation by reducing the cost of financial intermediation, improved services to existing customers and attracting new ones (Forcadell, Aracil & Úbeda, 2020). The interest on the digitalization of services and its influence on organizational outcomes have attracted the attention of different scholars.

While some studies have shown that innovations have the least impact on the financial performance of financial institutions, other empirical studies have revealed that digital innovations significantly impact the financial performance of financial institutions. Notably, studies such as Mwania and Muganda (2011), Kariuki (2011), and Ngari et al. (2014) resolved that digital innovations have a significant influence on the performance of financial institutions while Pooja and Singh (2009) reveal that innovations have an insignificant effect on the financial performance of banks.

Similarly, while studies that have been undertaken exploring the impact of digital and financial innovations on the financial sector, studies concentrating on the drivers and the influence of digital innovations on the Forex exchange industry are limited , more so in the Kenyan context. Rather in the Kenyan context, many of the studies conducted on the impact of digital innovations on financial institutions have concentrated on the banking sector. However, the operations of commercial banks and forex bureaus are different, and as such the nature of digital operations differ. Further the current research combines different variables that define digitalization and suggested by scholars, namely; electronic funds transfer (Colton, 2013), automated office (Oyugi, 2014), use of office applications platforms and online trading platforms (Ngumi, 2014). The use of the different variables in this study is yet another gap to be filled. Further, due to the inconsistencies from most previous studies, the motivation for this study is justified. This study intend to fill the existing gap in the literature and to extend knowledge on the subject issue by examining key digital innovations being adopted by Forex exchange bureaus and how they influence the financial performance of Forex exchange bureaus, in the context of Kenya.

1.3 Research objective

The objective of this study is to determine the impact of digital innovations on the financial performance of Forex bureau firms in Kenya.

1.4 Value of the study

This study has both theoretical and practical significance. Theoretically, the study findings add to the already existing literature relating to the influence of digital innovations on the financial performance of financial service providers.

In terms of practical significance, this study is relevant to different stakeholders such as investors and managers of Forex exchange bureaus in financial sector planning. Notably, managers of Forex exchange bureaus can use this study's findings to determine innovative ideas that can be developed and supported in the Forex exchange industry with regards to enhancing their profitability. The study findings can also enlighten Forex exchange bureaus and their investors alike on the type of innovations with a better influence on the financial performance for future considerations in their organizations.

<center>**CHAPTER TWO**</center>

<center>**LITERATURE REVIEW**</center>

2.1 Introduction

This chapter conducts a review of theoretical and empirical literature relating to the subject topic. In doing so, it gives a good background of ideas for the researcher to undertake the study. It is organized into three main sections. The first section provides recent development and digital innovations in the Forex Exchange market. The second part review theories relating to the subject topic. These theories inform the research on the source of study variables and the interaction between independent and dependent variables. The key theories found to be relevant in this study include innovation diffusion theory; task technology fit theory, technology acceptance model, and Transaction-Cost innovative theory. The second section undertakes a review of the empirical literature on the major determinants of financial performance of Forex bureaus. Also, the section conducts an empirical literature review of previously published works that bring about findings relating to the research question. Towards, a conclusion of the reviewed studies is provided at the end.

2.2 Theoretical framework

A theoretical framework guides the research and helps to determine what variables to measure and what statistical relationship to look for in the context of the issues under study. Thus, the theoretical framework helps to evaluate existing theoretical models relevant in explaining issues driving the research study. The following theoretical models are relevant in this research study: innovation diffusion theory, Task Technology Fit Theory, Technology Acceptance model and Transaction-Cost innovative theory.

2.2.1 Innovation diffusion theory

Propagated by Rogers in 1995, innovation diffusion theory holds that an innovative idea gains momentum over time and then spreads within a particular population (Rogers, 2003). According to innovation diffusion theory, the diffusion rate of innovation is influenced by the perception of innovation by potential adopters, innovation's integration, testability, superiority as well as the degree of being compatible (Rogers, 2003. Glanz (1997) describes diffusion as a process through which any innovation means gains momentum and then diffuses it to particular demography or is embraced by other people through perception. For adoption to occur, people have to see the idea or a product as new or innovative (Kaminski, 2011).

Factors influencing the adoption of innovation include trialability, tangibility, compatibility relative advantage and observability (Rogers, 2003). First, the new idea has to be compatible with the needs and values of the potential adopters. Second, the relative advantage aspect is associated with the innovation and the idea or program it seeks to replace. The third factor involves how innovation provides tangible results and lastly the extent to which it can be experimented (Rogers, 2003). Complexity simply means the ease of use and learning, observability explains the extent to which ICT outputs and their benefits are visible while trialability explains the extent to which innovation brings about opportunities that help in trying it before it is put to use (Rogers, 2003). While these factors are not exclusive and hence cannot be used to predict the diffusion of innovation, they play a critical role in explaining the adoption of technological innovations in the financial sector. Accordingly, as Peres et al. (2010) suggest, it is essential to understand the traits of the target population before the adoption of said innovations. This theory categorically states that innovation diffusion does not usually occur

categorically. Rather, it is a process whereby some people, as part of the social system are quick to adapt while other may longer time.

A major critique of diffusion of innovation theory is that it does not specify whether or not any means of innovation is applicable in all firms (Lundblad, 2003). It also fails to address whether or not innovation adoption is affected by the size or type of the industry (Lundblad, 2003). Nonetheless, innovation diffusion theory is relevant to the study as it aids in defining why firms may be fast in adopting new technologies than others. This is due to its emphasize to explain the rate at which new technology or ideas spread. Diffusion of innovation is applicable to understand how customers are apt to download mobile transaction applications while others may take longer time to adopt. This is observable in the financial industry where some firms may have adopted technology instantly while others take a longer time to adopt them.

2.2.2 Task Technology Fit Theory

Task Technology Fit Theory was established by Goodhue and Thompson in 1995. Task

Technology Fit Theory holds that there is a possibility that information technology positively impacts the performance of an individual (Goodhue and Thompson, 1995). The suitability however depends on whether the deployed IT capabilities match the tasks which the operator desire to accomplish (Furneaux, 2012). The aspects that measure task technology fit include ease of use, quality, system reliability, relationship with users' authorization and locatability (Furneaux, 2012). This theory holds that the accomplishment of an information system must be interrelated to the fit between technology adopted and task, success is linked to both individual and group performance. This theory holds a match between information technology and the business task is crucial in forecasting the accomplishment of an information system (Goodhue and Thompson, 1995). The concept of technology-task fit aids in identifying essential factors

that offers support to business tasks and hence can accordingly contribute towards the success of technological innovations available to firms (Muthui, 2003). Essentially, Task Technology Fit Theory suggests that technology use and its impact on business performance is highly dependent on how technology and the business tasks at hand fit together. Precisely, it insists that task success occurs when users deploy an appropriate technology to assist in performing that task (Teo and Men, 2008). Therefore, any mismatch between the task and technology can be considered to be detrimental to task performance.

This theory is significant to the current study that seeks to explore different tasks conducted by a varied choice of technological systems adopted by financial institutions. This is due to its emphasis on examining the factors influencing user acceptance of new technology and how tasks affects the adoption of new technology. Specifically, this theory can aid in examining various tasks that can be adopted by technological systems of Forex bureau firms. If there is a fit between technology and the business task, the Forex bureaus can then deploy newer innovations to enhance their performance.

2.2.3 Technology Acceptance model

The Technology Acceptance Model (TAM) is widely used to explain how the applications of information technology in various fields. It explains how users perceive and embrace technology (Legris et al., 2003). This theory suggests major issues that impact customer decisions on how and when to use technologies are mainly lie in its perceived usefulness and perceived ease of use (Amoako-Gyampah and Salam, 2004). According to Chau (1996), perceived usefulness measures describe the extent to which the application of the new technology or system improves organizational performance. Perceived usefulness determinant has been applied in the financial sector, especially by commercial banks, whereby new systems are often tried by these firms to

increase their marginal profits and improve their performance. However, Chau (1996) acknowledged that technology or innovation can be useful to the target users but not user friendly. This elaborates the need to develop and adopt innovations that are user-friendly and easy to use by potential users. Chau (1996) suggests the need for firms to strike balance between these two determinants of technology acceptance to achieve high-level business performance. Nonetheless, this theory has been expanded to include other aspects that affect the acceptance of new technology.

This theory is relevant to the study as it serves as a backbone when developing anticipated financial innovations applicable in Forex exchange bureaus. The model is designed to explain the attitudes of intentions to adopt a specific technology or service and predict end user's acceptance of IT and usage in the organisational context. TAM is critical in this study, especially for self-service digital solutions because it advocates for ways in which such innovations should be developed in a way that is user-friendly to both the company and consumers.

2.2.4 Transaction-Cost innovative theory

Developed by Hicks and Niehans (1983), transaction-cost innovation theory argues that the sole purpose of financial innovations is to reduce the operation costs of any organization (Hicks and Niehans, 1983). The theory proposes that ripple effects generated from the reduction of transaction or operational costs improve service delivery in the organization (Cherotich et al., 2015). The transaction-cost innovative theory proposes that financial innovations are driven by profit maximization. Nonetheless, this theory holds that the dominant factor that drives financial innovation is the reduction of transaction/ operational costs (Remneland-Wikhamn and Knights, 2012). Hicks and Niehans (1983) held that financial innovation that financial institutions adopt is the response to advances in technology that caused a reduction in transaction costs. Accordingly,

reduction in transaction cost can stimulate the motive of financial innovation and subsequently result in improvement in financial performance. In light of this, Muguna (2019) pointed out that the importance of Transaction innovation theory in the internet-related IT setup considerably reduces the firm's exchange costs by fostering the delivery of effective data coordination, administration, and data utilization.

This theory is significant to the current study. It forms the basis for cost reduction by articulating interlink between capabilities and transaction costs. The theory suggests that transaction costs can be achieved through the use of technology and thus can assist in the design of the innovative transactions that aligns to the needs of the business. In the context of Forex exchange bureaus, it is applicable to explain the proliferation of in mobile devices with internet-associated IT capabilities to reduce exchange costs, owing to their advantages to enable access to the firms' internal database and other important information sources. The outcome further causes a reduction in operation costs for example by the introduction of mobile-based transaction applications or internet banking applications and subsequently leading to the firm's profitability growth. Therefore, this theory is also relevant to the study it serves as a reference point for Forex exchange bureaus with regards to the factors that may influence innovation in the industry and their influence on financial performance.

2.3 Determinants of financial performance of Foreign exchange bureaus

The major determinants of financial performance of the Forex exchange bureaus include fluctuation in exchange, firm size and ownership structure, experience and corporate governance structure.

2.3.1 Exchange rate fluctuations

Exchange rate fluctuations increase uncertainties in the performance of Forex exchange bureaus. According to David (1997), such exchange rate risks increase the possibility of loss-making by the Forex exchange bureaus due to either the increase or decrease the exchange rate of the country to another country, thus affecting the firms' profit margins. Accordingly, Forex bureaus operating in a floating exchange rate system are forced to absorb extra exchange rate fluctuation costs in most cases rather than passing the extra costs to their customers. The main rationale for taking such decisions, as argued by Osho and Efuntade (2019) is due to the reasoning that that predictability and consistency would help to maintain customers and as a result increase revenues

2.3.2 Firm size

The size of a Forex exchange bureau is determined by assets invested in the firm. This equates to the total assets invested in the business to the owner's debt and equity. There is no precision regarding how a firm's size can be determined. This depends on the factors under consideration. Among the different ways in which the firm size may be determined include total capital invested by the business, the value of revenues generated from the products sold by the business, number of employees among others (Laeven and Woodruff, 2007). In the context of this study, the total amount of capital investment made by the firm is used in determining the size of the firm. According to Mulili and Wong, 2011), large Forex exchange bureaus are better positioned to obtain foreign exchange at better rates because they are more likely to transact in bulk as compared to smaller firms. As a result, they can attract better profit margins as much as they can attract confidence from consumers. As Mulili and Wong (2011) suggests larger firms are more likely to gain larger market share as compared to small firms.

2.3.3 Firm's experience

The firm's experience in terms of years of operations significantly affects its financial performance. As Coad et al. (2015) just like new products, new businesses as well under a product life cycle, whereby in the initial stages they encounter teething problems and slow growth. The level at which the new business will be able to blend and meet consumer needs defines whether it will thrive or not and this is critical in determining the firm's financial performance.

Firm age influences the performance of a firm because of the accumulated knowledge on business activities it's engaged in, reutilization of processes and organization flexibility. These firms can invest in higher level of research and development programs, hire better human capital and train them better and thus be able to generate return on assets under the disposal. Coad, ., Holm, Krafft & Quatraro, (2018) assert that aged firm steadily increased their profitability and over time accumulating their equity over time and thus being able to generate higher return on investment as compared to young firms. Aged firms benefit from economies of scale and experienced performance among its life implying that older firms are likely to be more profitable because of their ability to pre-empt market capacities due to market capture tendencies. Rossi, (2016) found a negative relationship between firm age and financial performance of firms.

2.4 Empirical review

Empirically, the significance of digital innovations in the financial services industry is widely recognized. Many scholars have highlighted the importance of digital innovations in the financial service sector. This study reviews both global and local studies evaluating the impact of digital innovations on the performance of the financial services industry in general. The reviewed literature makes use of different research methodologies and with varying study contexts.

2.4.1 Local studies

In their empirical study on the impact of financial innovations on commercial banks, Zwedie (2013) surveyed 43 commercial banks in Kenya. The study used both primary and secondary data and descriptive statistics and multiple regression to analyze data. Financial performance was measured by ROE and ROA against 12 innovations aspects in the financial services industry. Among the key financial innovations studied were ATM cards, internet banking, and credit cards issued to customers. The study found that the number of customers registered for internet n banking, agency banking imposed ROA on studied banks.

In their study, Ngari et al. (2014) assessed the relationship between mobile banking, internet banking, agency banking, and credit cards on banks performance in Kenya. Their study analyzed the performance and innovations of 40 registered commercial banks between 2008 and 2012. This study used secondary data as the main data collection type from published financial statements. The study held that studied banks that pursued financial innovations such as internet and agency banking had a positive and significant impact on the financial performance of the studied banks. Nyathira (2012) analyzed the impact of financial innovations on commercial banks' financial performance as of 30th June 2012. The target population was 43 registered commercial banks in Kenya for 4 years. The study used secondary data collected from published reports by central banks. The study used financial innovations unique to the studied commercial banks as the independent variable. The study found that financial innovations contributed to and were positively related to the profitability of commercial banks. Aduda and Kingoo (2012) support this view. Aduda and Kingoo (2012) embarked on a study to investigate the relationship between e-banking and the commercial banks' financial performance in Kenya. This study used a descriptive research design and data collected from secondary sources. Data was analyzed

statistically using both descriptive and inferential statistics. The independent variables were investments in e-banking and the number of debit cards and ATMs issued as proxies for ebanking. The dependent variable was financial performance, measured by return on assets. The study revealed that electronic banking had positive and significant marginal effects on commercial banks' financial performance. The study concluded that e-banking services have made firm-customer transactions easier by bringing services closer to consumers and hence improving the financial performance of the banking industry. However, this study is limited in scope as it only focuses on the banking industry.

An earlier study by Nyaga (2015) disagrees with Nyathira's (2012) and Aduda and Kingoo's (2012) findings. Nyaga (2015) assessed the relationship between financial innovation and commercial banks' financial performance in Kenya. 44 commercial banks study and used their financial performance between 2005 and 2010. The study used linear regression to analyze data, using innovation as the independent variable and profitability as the dependent variable. Methodology triangulation was adopted through the use of primary data and a review of secondary data. The study found no relationship between various innovations adopted by commercial banks in Kenya and the profitability levels.

In the context of Forex bureaus market, Waithaka (2018) study explored the impact of internet integration on Forex trading in Kenya. This study used primary data and questionnaires as the main research instrument. The population of interest included commercial banks, Forex bureaus, and Forex brokers. The collected data was analyzed statistically using both descriptive and inferential statistics. Multiple linear regression was utilized in data analysis to test the study hypothesis. The study found out that a direct association between internet integration and Forex trading. Notably, the findings revealed that internet technology and integration have led to a

positive and positive impact on Forex trading through increased online trading. The study suggested the need to ensure efficient and effective internet integration management in order to improve their growth. However, this study is still limited as it measures internet integration as the only innovation variable.

2.4.2 Global studies

Abor (2005) investigated the relationship between technological innovations in the Ghanaian banking industry. This study used innovations such as ATMs, PC-banking, telephone banking, and Electronic Funds Transfer at the Point of Sale as dependent variables and bank performance as the independent variable. The study results, in general, indicated a positive correlation between technological innovations or electronic delivery channels on the performance and the general growth of the banking industry in Ghana. Agboola (2006) supports Abor's (2005) study findings. In his study, Agboola (2006) looked into the impact of ICT in the financial sector, targeting banks in Nigeria. The study investigated the adoption of smart cards, electronic money transfer, agency banking, ATMs, and e-banking as the independent variables and banks' performance as the dependent variable. The study concluded that the adoption of information and communication technologies led to an improvement in reputation and competitiveness. Agboola (2006) suggested the need for bank management to invest in ICT products to facilitate convenience, speed, and accurate financial services to win over the competition in the financial sector.

Further, a study by Hernando and Nieto (2005) assessed the impact of internet usage on the performance of financial institutions, taking banks as an example. The study found that internet usage in the financial service sector led to an overall reduction in banks expenditure from the banks' point of view. This, in turn, led to improvements in banks' profits. The study found that

while internet usage was not a substitute for office banking, it was a means to complement human resource weaknesses. The study held that it was through improved productivity associated with online transactions that had a significant impact on the profitability of financial service providers. Additionally, a study by Siam (2006) about the banking industry in Jordan showed that e-banking innovations led to more satisfied customers and long-term cost-savings strategies. A later study by Mabrouk and Mamoghli (2011) about the banking industry in Tunisia found a positive correlation between innovations of the banking industry and return on assets. However, the above studies are still limited in the context of the current study as it focuses only on the banking industry. Nonetheless, it is still important in the current study as it demonstrates that internet integration into the financial services sector ensures low operation costs, high efficiency, and profitability of the financial service providers. However, Akhisar Tunay and Tunay (2015) study held a different view. This study investigated the impact of electronic-based banking on banks' profitability. Data was collected from banks from both developed countries between 2005 and 2015. Dynamic panel regression was used in data analysis. The study found that internet banking negatively impacts the banking industry. The study found that high infrastructure costs associated with internet coupled with insufficient number of customers can negatively impacted the profitability internet banking services and thus contributed to reduced bank performance. However, the study is limited as it only focused on internet banking as the main source of technological innovation.

In their study, Malhotra and Singh (2013) conducted a study on the impact of internet banking on banks' performance in India. This study collected data from 82 commercial banks operating in the Indian banking sector between 1998 and 2007. Multiple regression analysis was used to collect data. The study found that banks with internet banking services achieved higher

operational efficiency compared to traditional banks. The limitation of this study is that it concentrates on the banking industry and uses internet banking as the only independent variable.

Additionally, in their study, Ho and Mallick (2006) investigated the impact of IT-related financial innovations on the performance of financial service providers in the United States. This study analyzed how IT-related financial innovations such as internet banking, electronic payments, information exchanges and security investments impacted banks' profitability. The study analyzed 68 bank institutions. The findings revealed that while IT investments reduce operational costs, bank institutions spend substantial investments in IT developments which in turn lowers banks' profitability. Schweizer (2019) analyzed the impact of digitization in the financial services industry. This study was explorative and followed a cumulative approach, whereby the communication of study results was through journal publications and conferences. The study found that digital innovations have led to fundamental changes in the financial services industry, mainly attributed to blockchain technology. The study recommended the need for financial services firms to integrate blockchain technology into their operations to maximize their potential.

In their study, Chaarani and Abiad (2018) investigated the influence of digital innovations of the performance of banks in the context of Lebanon banking industry between 2010-2017, using return on assets and the return on investments as financial performance indicators. The digital innovations under considerations included mobile banking, internet banking and investment in computer software. The study found that investment in internet showed the most significant impact of the banks' financial performance. This study affirms an earlier study conducted by Abdullah (2017) which examined the impact of technology innovations on bank performance. The study found that the use of innovations related to technology significantly the performance

of banks. The use of technological innovations was also found to have significant positive influence on customer service by ensuring that the services were easily accessible to consumers. However, both studies are still limited because focused on one financial services sector: banking sector.

A recent study by Zu et al. (2019) reveal that the positive financial performance of financial service providers depended on the type and nature of technological innovations adopted by the respective firms. While investigating the impact of technological innovations the profitability of banks between 2015- 2018, Zu et al. (2019) revealed that the use ATMs was most significant innovations in improving bank's profitability with an exception internet banking and POS terminal. However, this study still cannot be generalised to other financial services sectors such as Forex exchange bureaus.

2.5 Summary of empirical review and knowledge gaps

Based on the analysis, it is evident that the literature on digital/financial innovations on the financial performance of financial service providers is wide-ranging. Some of the financial/digital innovations found in the literature include electronic funds transfers, mobile banking, internet banking.

The current study is also attached to different theoretical studies including innovation diffusion theory, task-technology fit theory, Technology Acceptance Model (TAM), and Transaction-Cost innovative theory. Evaluation of innovation diffusion theory shows that the diffusion of innovations gains momentum over time before spread, driven by users' perception, integration, testability superiority, and the degree of compatibility with the needs of the potential adopters. Task-technology fit theory advocates for a need for between the information technology and business task to achieve the success of technological innovations available to firms. Technology

Acceptance Model (TAM), on the other hand, advocates for ways in which such innovations should be developed in a way that is user-friendly to both the company and consumers. The transaction-Cost innovative theory holds that the dominant factor that drives financial innovation is the reduction of transaction/ operational costs. The study reveals that this theory is relevant as it can serve as a reference point for Forex exchange bureaus with regards to the factors that may influence innovation in the industry and their influence on financial performance.

Evaluation of empirical framework shows that digital innovations have a direct and significant impact on the financial performance of financial services providers. Based on the analysis, conclusions drawn from the studies about the influence of digital innovations on financial performance of financial service firms are varied. The majority of the studies from the empirical research reveal digital innovations have positively impacted the financial performance of financial service providers. From the reviewed studies, benefits derived from digital innovations ranged from low operation costs and consequently higher profitability, high efficiency, service delivery improvement and consequential improvement in firms' reputation and competitiveness.

However, some other researchers found that innovations in the financial service industry do not necessarily lead to better performance of banks. Few studies found that some digital innovations such as e-banking may negatively impact the financial performance, especially when the high infrastructure costs involved in internet banking are coupled with lack of sufficient internet banking customers. In the context of Forex Bureaus, the evaluation of the literature reveal that digital innovations are not the only predictor of financial performance and the effectiveness of such innovations are dependent on other internal factors such as corporate governance structure, firm size, and experience as predictors of financial performance.

Overall, the existence of the contrasting findings concerning the impact of digital innovations on the financial performance of financial service providers necessitates the need to conduct this study. More precisely, most of the studies reviewed are limited in scope and concentrated on the banking industry. There is a scanty of research on the role and influence of digital innovations on financial performance in the context of Forex exchange bureaus. This study intends to fill this gap by exploring key digital innovations in the Forex bureaus and evaluate their impact of digital innovations on the financial performance of Forex bureaus. Furthermore, due to the inconsistency from most studies conducted both locally and globally, the motivation to undertake this study remains justified and relevant.

2.6 Conceptual Framework

The researcher has developed a conceptual framework and based on it to assist in the conduct of the study. The dependent variable for this research is financial performance, measured in terms of profitability and revenue growth, ROA, and customer growth. Independent variables in this research are including electronic money transfer, online trading platforms, mobile applications, and automated office operations. In all the variables, the number and value of transactions based on each digital innovation will be assessed.

Digital innovations		Financial performance

Independent variables

Dependent variable

Return on assets (ROA)

customer

Electronic money transfer

- Number of transactions
- Value of transactions

Automated office operations

- Investment in automated operations
- Value of transactions

Use of mobile app applications

- Investment in mobile number of customers
- Number of transactions

Online trading platform

- Number of transactions
- Number of customers

Control variables

- Average value of the industry return on assets
- Average value of the industry profitability growth
- Average value of revenue growth industry

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The previous literature review chapter reviewed the main literature on the impact of digital innovations on the financial performance in the financial sector industry. From the literature review, it emerged that the impact of digital innovations in the financial performance of Forex Bureau firms is not well investigated and especially in the Kenyan context. In a bid to address this gap, this chapter is concerned with the design of a research methodology to aid in data collection and analysis. Different research methods are discussed and their selection justified includes the research design, the population of interest, sampling strategy and procedure. Other aspects considered in this chapter include data collection procedure, data analysis method used and the measures the researcher took to comply with ethical measures followed and measures to ensure that the research meets reliability and validity threshold

3.2 Research design

The research design provides guidelines of the procedures needed to obtain the information needed to structure and resolve a research problem (Antwi and Hamza, 2015).

This study adopted a descriptive research design. According to Anderson and Arsenault (2005), descriptive research design allows the research to seek information regarding the topical issue under investigation more directly by describing the situation. This type of research design helps to depict the research participants in an accurate way. In particular, this helps the research participants to provide their responses freely whereby they describe the aspects that affect them as far as the topic of the study is concerned (Anderson and Arsenault 2005). Moreover, the adoption of the descriptive research design facilitates the research in examining the existence of

digital innovations and therefore allowing the research to establish their implications on the financial performance of Forex bureau firms.

3.3 Target population

The study targeted Forex bureaus operating in Kenya. As of October 2021, there were 74 licensed foreign exchange bureaus (see Appendix 1) (Central Bank of Kenya, 2021). The research aimed to involve managers in these Forex bureaus as the respondents. Due to their limited number, the research adopted a census method. In this case, the unit of analysis was all licensed Forex exchange bureaus as listed on the Central Bank of Kenya's directory of licensed bureaus. One of the key strengths of using this method was that the study results based on the census were more accurate and reliable, owing to the vast number of units or members of the targeted population taken into consideration. However, the key disadvantage of using the census method was that the expenditure incurred was expected to be higher owing to the sheer size and geographical dispersion on the population of interest which requires additional costing. For data collection, the researcher targeted to recruit one experienced manager from each firm to answer the questionnaire because they assumed to be well versed with the digital innovations implemented by their firms and their value to the firm.

3.4 Data collection

Data for the study was collected by use of questionnaires. The questionnaire structure entailed the use of structured and unstructured questions. The use of structured questions aids in reducing variability in meanings from the research queries

3.4.1 Research instrument

The study used a questionnaire for data collection. The questionnaire was considered the most suitable instrument in this case as they provided the researcher with a larger scope necessary to conduct the study (Denscombe, 2017). Moreover, they were preferred since they allowed the research participants to provide candid and objective responses to research queries (Denscombe, 2017). The questionnaire structure entailed the use of structured and unstructured questions. The use of structured questions aids in reducing variability in meanings from the research queries. Moreover, they provided an easier way to ensure comparability of the responses given by the respondents (Acharya, 2010). On the other hand, unstructured questions were useful in giving insightful information relevant to the subject issue under study (Acharya, 2010), answering the research questions such as examples of Forex exchange market innovations adopted by Forex bureaus. The questionnaire consisted of three sections. The first section was used to collect basic information about the company. The second section consisted of multiple-choice questions on independent variables such as types of digital innovations adopted by Forex bureaus in Kenya.

The third section consisted of Likert-scale questions to collect data to assess the extent to which digital innovations affect the financial performance of the studied Forex bureaus.

3.4.2 Data collection procedure

In this study, the key informants were managers from the Forex bureau operating in Kenya.

Managers were preferred since they were assumed to be knowledgeable on the topic of the study. The researcher made use the of directory of licensed foreign bureaus available online from the central bank of Kenya website as well as business to business data available to identify Forex bureaus. The managers were selected to take part in the study through the completion of a questionnaire.

The procedure of collecting data involved several procedures. Firstly, the researcher was seeking permission from the potential Forex bureaus beforehand. After getting permission to conduct the study, the researcher proceeded to request managers from each Forex Bureau about the intention to involve them in the present study. Before conducting the study, the researcher informed the potential participant from each Forex bureau about the purpose and objectives of the study to seek their informed consent.

The next step was distributing questionnaires. Going into the data collection process, the participants were asked the extent to which each innovation has been used in their firm. Digital innovations studied include automation of office operations, electronic money transfer, mobile applications, and online trading platform. The number of transactions or value of each variable was probed in this regard. Then, the next part of the Likert scale questions required the respondents to answer the extent to which each digital had impacted the financial performance based on several metrics such as profit growth, customer base growth and revenue growth. The respondents were given three days to fill and submit the questionnaire. The questionnaire was either mailed or physically distributed to the participants based on their convenience. After this process, the collected data was ready for analysis.

3.5 Validity and reliability tests

To enhance the reliability of the study, only the scale items with Cronbach alpha values of 0.80 was utilized. Bonnet and Wright (2015) suggest that alpha values above this threshold serve as a reliable indicator of the internal consistency of scale items. The Likert scale items that was used range from 1= strongly disagree and 5= strongly agree.

A validity test was also conducted using Pearson correlation. In this regard, the researcher correlated each item's questionnaire score with the total score. If the significant value is <0.05, then the instrument will be considered valid.

3.6 Data analysis

Statistical Package for Social Sciences (SPSSv24) was used to analyze data. Both descriptive and inferential statistics was used. Descriptive analysis entails the use of means, frequencies, percentages, and standard deviation. Descriptive analysis was used to analyze the demographic and basic information generated from the questionnaire. This information was presented in tables and pie charts. The inferential analysis was then conducted to analyze the correlation between independent and dependent variables. This part of the analysis presented regression and correlation analysis.

3.6.2 Analytical model

Firstly, the strength of this relationship was measured by conducting F-test and T-distribution test at 5% significance level. As Miles et al. (2013) this test was useful in determining whether or not the adopted regression model was statistically significant.

The regression analytical model used comprised the following regression equation

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

Where;

Y= Financial Performance was measured by a composite Likert scale ranging from of the (1)=Very unsuccessful to 5=very successful. The variables were combined together when measuring the financial performance. Due to the fact that the financial reporting of listed Forex exchange bureaus was voluntary; it was difficult to access or review the annual reports of

participating firms from the secondary data sources as such reports were not accessible publicly. Thus, the questionnaire data from the surveyed respondents (managers of participating firms) was vital in assessing how digital innovations adopted by their respective firms affected the financial performance.

X1=electronic funds transfer measured by the amount and number of transactions

X2=Automated office operations measured by investment in automation in office operations and value to the firm

X3= use of mobile applications measured by investment in mobile applications and number of transactions

 X4 =online trading platform measured by the number of customers and the number of transactions

 β0= Constant determined by the study's model.

β0, β1 β2, β3= coefficient for individual variables showing the effect of the independent variables on the dependent variables.

ϵ=error term to denote other factors affecting the financial performance not captured in this model.

A linear regression analysis was used to measure the coefficients of the linear equation and to examine the best independent variables that best predict the dependent variable value.

3.6.3 Operationalization of study variables

Study variable	Proxy	Definition	Measurements
Financial performance	Y	Firms capability to come up with resources and capabilities, manage them to earn competitiveness	Composite weighting of the Likert scale variables relating to return on assets.
Electronic funds transfer	X1	Electronic transfer of money from sender to receiver and Bureau firm to customer account via computer based systems with direct intervention by the Forex bureau staff	Log of value of amount and number of transactions electronically in the past years
Automated office operations	X2	Different types computer systems and software in front and back office that are used to digitally collect, store and manage data and utilisation of office information in tasks execution	Overall, investments in automation in office operations and value to the firm
Mobile applications adoption	X3	Bureau firm's capability to adopt mobile phone to enhance operations	Log of the value of transactions done through mobile devices
Online trading platform	X4	The application of web-based exchange bureaus software to manage office	Log of the number of customers and the number of transactions

		operations in buying and selling foreign currencies to and from customers	

3.6.4 Test of significance

The study used ANOVA to test the significance of variables and model. Specifically, the study used p-value and F-statistics to test model's fitness to the data and the significance of the analysed data.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1.   Introduction

Chapter four presents data interpretation as analysed to determine the impact of digital innovations on the financial performance of Forex bureau firms in Kenya. The Data was analysed using the Statistical Package for Social Science where descriptive statistics and inferential statistics were used. The chapter is structured as follows. First, the chapter provide response rate, reliability and normality tests, demographic information, descriptive statistics, correlation analysis, regression analysis and hypothesis testing as well as discussions of the findings. Findings discussions will relate the findings from the former research with the present study findings.

4.2.   Response Rate.

The research targeted a total of 74 bureaus using census. From these 74 bureaus, a sample of 1 participant from different department was selected. In the present study, a sample of 74 participants was acquired, which is a response rate of 100%, which Mugenda and Mugenda (2003) views as excellent since it is above 70% recommended by their research. Further, Bonett and Wright (2015) recommended a reliability analysis be conducted to understand internal consistency of the data. High internal consistency is recommended by Bonett and Wright (2015) because it reflects high possibility of findings to provide reliable conclusions and recommendations. Reliability test was conducted using Cronbach Alpha test and reliability results provided in Table 4.1 below.

4.3 Reliability tests

The study carried out tests of reliability. Reliability test was done using the measures of digital innovation which were the independent variables of the study. A reliability of 0.654 was arrived at, and given that excellent reliability of 0.7 as Bonett and Wright (2015) is excellent with above 0.6 acceptable, 0.654 was close to 0.7 which means that the data would provide reliable findings and conclusion about impact of digital innovations on the financial performance of Forex bureau firms in Kenya.

Table 4.1: Reliability Test

Reliability Statistics

Cronbach's Alpha	N of Items
.654	4

Secondly, normality test was done using VIF test and findings presented in Table 4.2.

Table 4.2: VIF Test

Coefficients[a]

Model	Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF	Eigenvalue
1 (Constant)	2.638	.465		5.667	.000			4.765
Electronic money transfer	-.017	.061	-.033	-.275	.0002	.859	1.165	0.105
Online Trading	.051	.062	.092	.822	.004	.988	1.012	0.061
Mobile Application	.195	.065	.359	3.006	.004	.860	1.162	0.052
Automated Office Automation	.093	.062	.166	1.492	.004	.990	1.010	0.017

a. Dependent Variable: Average Financial performance

According to Dorman et al. (2013), multicollinearity exists between independent variables with dependent variables when the tolerance is above 0.2, VIF value should be less than 0.5, and when Eigenvalue is close to Zero. Given that the collinearity Tolerance in Table 4.2 is above 0.2, VIF being less than 0.5 and Eigenvalue is close to 0.0 then there is no multicollinearity problem between the independent and dependent variables. This shows that the results can provide reliable and accurate findings about the relationship between digital innovation and financial performance of forex bureau.

4.4 Demographic Information

First, the study provides results on demographic information, which include gender, age, years worked and department. The findings are presented in Figure 4.1 to Figure 4.4.

Figure 4.1: Forex Bureau Respondents Gender
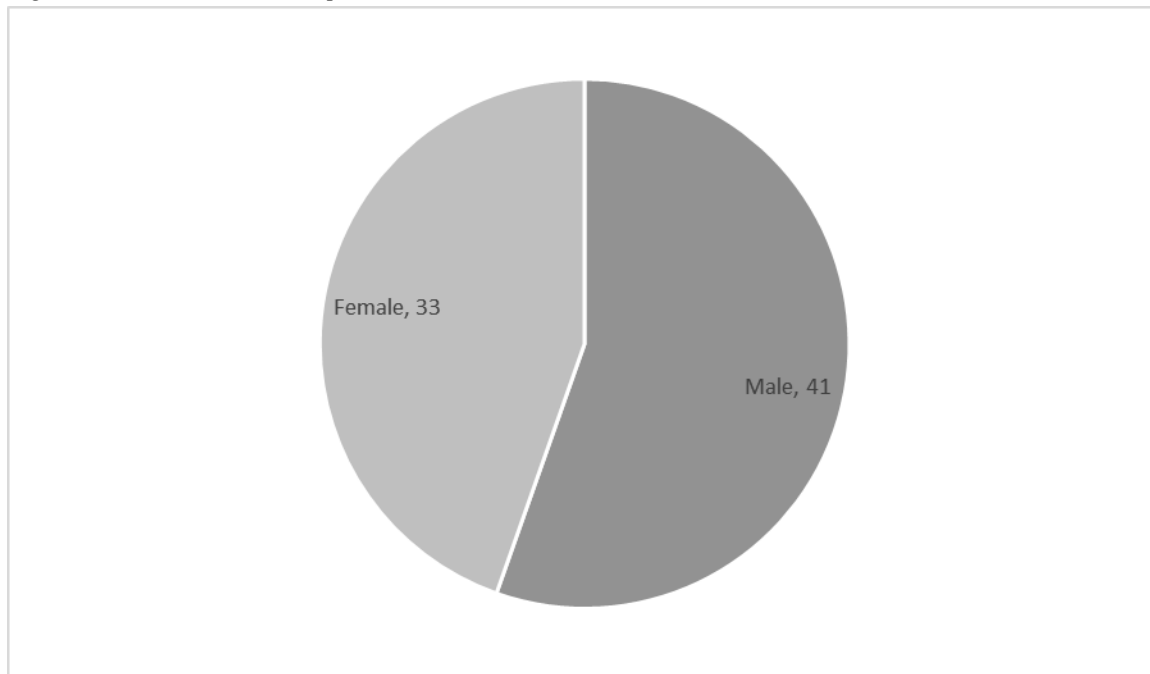
Findings in Figure 4.1 showed that there were more male respondents than the female respondents. While the male respondents were represented by 41(55%) participants, the female

were 33(45%). This means that there were more male workers in the bureau than female since census was used. However, this did not impact the reliability of the findings since the study is not gender based

Figure 4.2: Forex Bureau Respondents Age
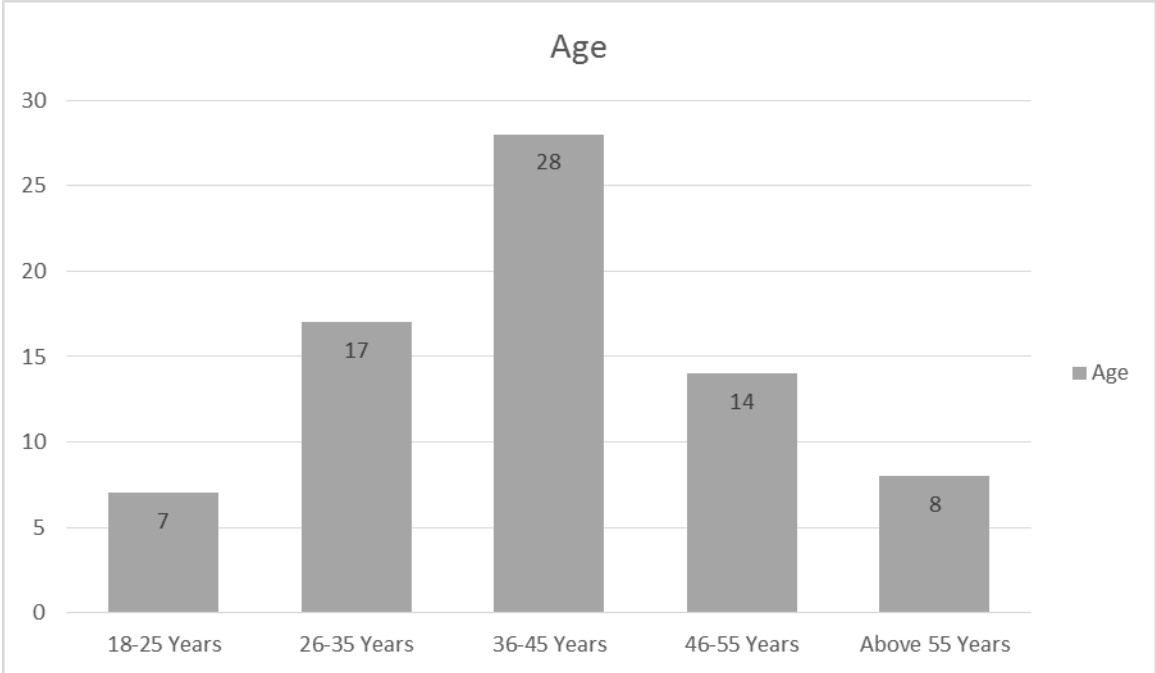
As findings in Figure 4.2 shows, most of the participants were aged 36-45 years at the forex bureau, who were represented by 28(37.8%) respondents, followed by those aged 26-35 years and 46-55 years who were 17(23%) and 14(18.9%) respectively. The least represented participants were aged 18-25 years and above 55 years as representation of 7(9.5%) and 8(10.8%) respectively. From the findings, it is evident that most bureau workers are aged between 26 and 45 years, which have the highest representation.

Figure 4.3: Years Worked at Forex Bureau
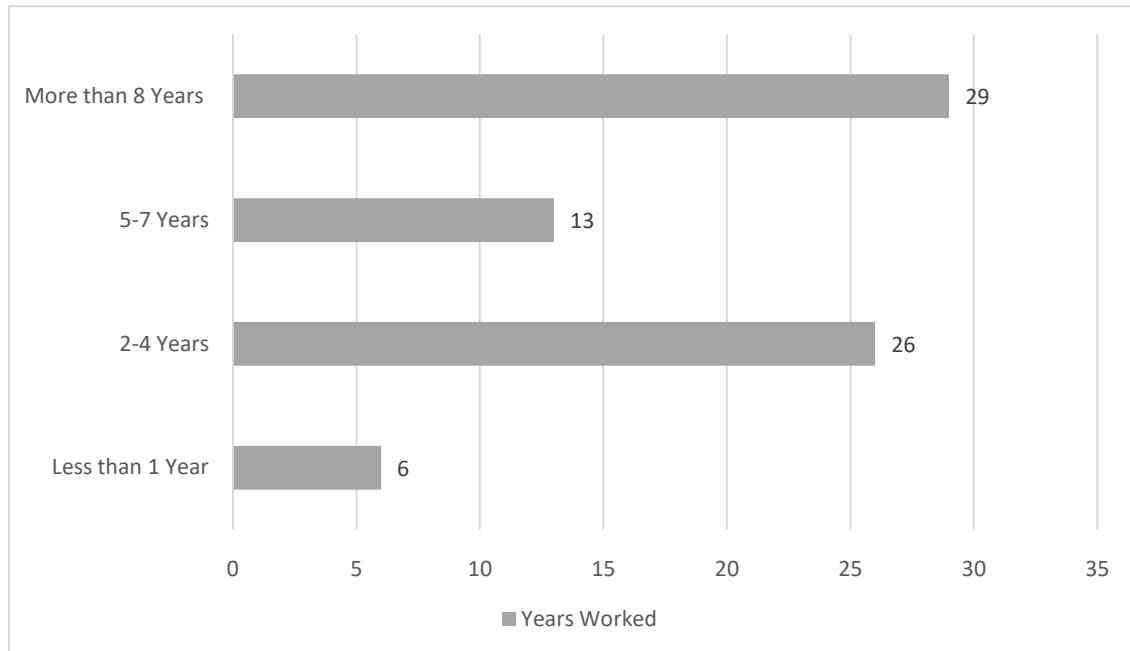
The study found that most of the respondents from the forex bureau had worked for more than 8 years as representation of 29(39.2%) respondents shows, followed by those participants aged between 2-4 years who were 26(35.1%). While 13(17.6%) participants had worked for 5-7 years, only 6(8.1%) had worked for less than 1 year. The findings mean that a majority of participants (91.9%) had worked for more than one year, with most also working more than 8 years, which is advantage for this study because these respondents have had enough working time to be aware of the digital innovations implemented in their forex bureau.

Figure 4.4: Department Worked at Forex Bureau
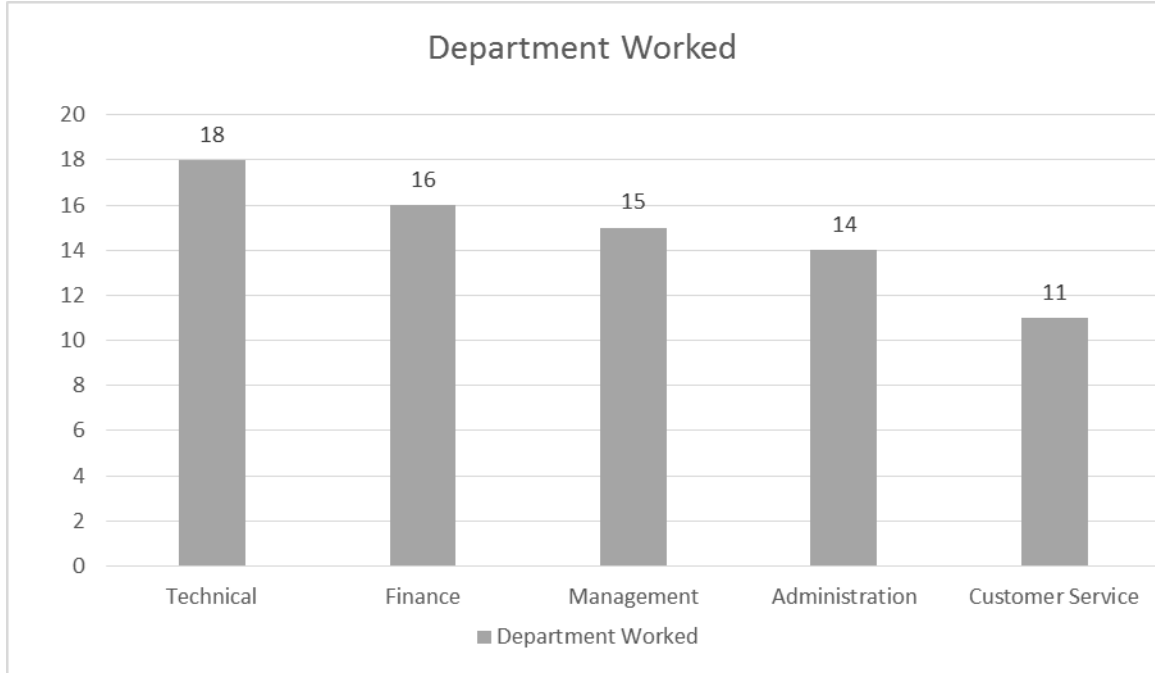
As figure 4.4 shows, most of the participants worked in Technical department, and were 18(24.3%) followed by those who worked in finance, management, administration and customer service who were 16(21.6%), 15(20.3%), 14(18.9%) and 11(14.9%) respectively. Given that the study used census, the representation shows the actual number of employees per department. This means that there are more workers in Technical department than other department, and having such representation meant that the study was able to get views from each department about digital innovation and its impact on financial performance.

4.3. Descriptive Statistics

Having presented the findings from participants' demographics, this section provides the descriptive statistics of the study. The descriptive statistics are interpreted in form of mean and standard deviation. Mean represent the Linkert Scale of 1-5, and while mean close to 1 indicate less agreement or extent while close to 5 shows high extent or agreement.

4.3.1. Digital Innovation

First, the study looked at the digital innovations used at forex bureau, and the findings were presented in Table 4.3.

Table 4.3: Digital Innovations Used by Forex Bureau

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Electronic money transfer	74	2	5	3.64	1.234
Online Trading	74	1	5	4.41	1.122
Mobile Application	74	2	5	4.03	1.158
Automated Office Automation	74	1	5	4.09	1.125
Valid N (listwise)	74				

The findings in Table 4.3 shows that to very great extent, Online Trading, Automated Office Automation and Mobile applications were used at the bureau as mean of 4.41, 4.09 and 4.03 showed respectively. Electronic Money Transfer was only used to great extent as mean of 3.64. Reviewing standard deviation (SD), it is evident that there was uniform high agreement that online trading, mobile application and automated office automation were used to very great extent, with SD being close to each other, compared to SD of electronic money transfer which was relatively high. This means that digital innovation mostly used at Forex Bureau are online trading, automated office automation, mobile application and electronic money transfer in that order.

4.3.2. Mobile Application

Secondly, the study reviewed the extent to which mobile application were used by forex and their impact on financial performance. Findings are presented in Table 4.4 and Table 4.5 below.

Table 4.4: Mobile Applications

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Customer Care	74	2	5	4.01	1.153
Monitoring their account	74	2	5	3.65	1.339
Access to quotes	74	3	5	4.76	.544
Monitoring their orders	74	1	5	3.39	1.108
Valid N (listwise)	74				

As shown in Table 4.4, it is evident that there was very great extent to which mobile application were used to access quotes and customer care as mean of 4.76 and 4.01 shows respectively but only great extent to which mobile applications were used to monitor accounts and orders as mean of 3.65 and 3.39 as shows. The low SD of 0.544 relatively below other SDs means that the greatest use and purpose of mobile application was to access quotes, but was also equally used in customer care. Therefore, bureau mainly used mobile application for accessing quotes and customer care, but also used for monitoring accounts and orders.

Table 4.5: Impact of mobile applications on the performance of Forex bureaus

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Increased outreach of the firm by increasing the number of customers	74	2	5	3.88	1.146
Unique products and services	74	2	5	4.00	1.239
Reduced cost of operations	74	2	5	4.23	1.117
Increased the company turnover and profitability	74	1	5	3.09	1.172
Reduced marketing costs	74	3	5	4.76	.544
Enabled the company to collect customer data	74	2	5	3.68	1.386
Expanded the company's geographical reach	74	1	5	4.41	1.072
Valid N (listwise)	74				

As Table 4.5 indicates, mobile application used to very great extent mainly reduced marketing cost and expanded geographical reach of customers at the bureau as mean of 4.76 and 4.41 showed respectively. Also, use of mobile application to very great extent reduces operational cost and offer unique products as services as mean of 4.23 and 4.00 showed respectively. To great extent, use of mobile application increased customer reach thus the customer number, enabled company to collect customer data and increased company profit as mean of 3.88, 3.68 and 3.09 showed in that order. The findings mean that at bureau, the greatest impact of mobile application is on marketing cost reduction, geographical reach and unique products and services offering.

4.3.3. Online Trading Platforms

Thirdly, the study reviewed how online trading platforms impacted performance of Forex bureaus. The findings are presented in Table 4.6.

Table 4.6: Online Trading Platforms

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
All services offered by the firm are alternatively available in digital form such as an online trading platform	74	2	5	3.86	1.186
The firm has adopted an online trading platform to meet to meet customer demands in a bid to remain competitive	74	2	5	3.86	1.186
The firm has created an online Forex training platform to give customers the freedom to trade in real time while also convenience	74	2	5	3.85	1.268
Valid N (listwise)	74				

Although there was no strong agreement that online trading platforms would generally increase the performance of the bureau, there was agreement that services offered by forex were also

available in online trading platforms, they were used to meet customer demand and remain competitive and to give customers freedom of trading at real time with convenience as mean of 3.86, 3.86 and 3.85 showed respectively. This means that application of online trading platforms by the bureau would allow the bureau to offer alternative trading platforms online, allow customers to trade on demand and allow company to remain competitive as well as giving customer convenience and freedom to trade in real time. These views were also held by participant when asked about their views about online trading platforms, where most of them indicated that as much as they improve competitiveness of the firm, the customers were also able to bid in real time and get products they demand at the time they want.

4.3.4. Automated Office Operations

Fourth, the study investigated the use of automated office operations, reviewing how they impact performance of the bureau. The findings are presented in Table 4.7.

Table 4.7: Automated Office Operations

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
A variety of computer-based office automation software such as electronic document management systems are in use in the firm	74	2	5	4.42	.965
Automation of office operations have allowed the business to deliver better customer experiences	74	1	5	3.31	1.134
Automation of back-office operations have helped reduce operational costs for the firm	74	2	5	4.42	.965
Automation of office operations for recording entries have allowed the firm to improve efficiency by reducing manual workloads	74	2	5	4.14	1.077
Valid N (listwise)	74				

The findings in Table 4.7 indicate that there are varieties of automated software such as electronic management systems used by the bureau as strongly agreed by respondents which mean of 4.42 evidences. Also, the mean of 4.42 and 4.14 showed strong agreement by respondents that automation of back office operations reduced operational costs and helped recoding entries, thus enhancing operations by reducing manual workload respectively. However, it was also agreed that automation office operations allowed the business to deliver better customer experience as mean of 3.31 showed, with high standard deviation of 1.134 showing high disagreement than other uses of automation of office operation in improving performance. Therefore, the findings mean that the while bureau had in place computer-based office automation software, they most helped reduce operational cost and improve efficiency. These views were also held by participants who most of them indicated that automated office operation helped improve efficiency by helping to record entries faster, thus contributing to overall reduction of operational cost and saving time.

4.3.5. Electronic Money Transfer

The study also reviewed how electronic money transfer impacted performance Forex Bureau. The findings are presented in Table 4.8.

Table 4.8: Electronic Money Transfer

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The firm has an electronic money transfer system to facilitate electronic money transfer	74	4	5	4.89	.342
The use of electronic money transfer has expanded commissions charged-based pay	74	4	5	4.86	.344
Electronic money transfer has increased the interest-based income	74	2	5	3.64	1.189
Electronic money transfer has improved the potential to generate income	74	1	5	4.38	1.107

Valid N (listwise)	74				

Overall, the findings in Table 4.8 showed strong agreement between electronic money transfer and performance of the forex. A mean of 4.89, 4.86 and 4.38 showed strong agreement among the respondents that electronic money transfer existed at the bureau to facilitate electronic money transfer, the use of electronic money transfer facilitated commission charged-based pay and had potential to improve income respectively. Also, there was agreement that use of electronic money transfer increased interest-based oncome. Consistent with these views, it was evident from the respondents that by having electronic money transfer at respective bureau, they were not only able to transfer money electronically, but also generated high income by charging on interest per transaction. Therefore, electronic money transfer is used by bureau in Kenya to generate income through commission and interest-based commission and income.

4.3.6. Financial Performance

Finally, the study measured the level of financial performance as a result of implementation of digital innovations. The findings are provided in Table 4.9.

Table 4.9: Financial Performance

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
General firm's profitability	74	2	5	4.12	1.072
Return on assets (Profit/total sales	74	1	5	4.18	1.127
Customer growth	74	2	5	3.61	1.214
Valid N (listwise)	74				

The findings in Table 4.9 indicated that at the forex bureau, the use of digital innovation improved return-on-assets most as mean of 4.18 indicated strong agreement, followed by strong agreement that firm profitability increased with use of digital innovation as mean of 4.12 shows.

However, there was also agreement that use of digital innovation at the forex bureau of Kenya contributed to growth of customers as mean of 3.61 showed. Indeed, to evidence relationship between digital innovation and financial performance of the bureau, a majority of participants i.e. 48(64.9%) indicated exceptional performance as a result of the use of digital innovation as shown in Figure 4.5. Although a few participant, 3(4.1) stated negative growth and 5(6. %) indicated no growth, 18(24.9%) still indicated satisfactory growth. The findings overall mean that the use of Digital innovations at the forex would contribute to exceptional and satisfactory financial performance.

Figure 4.5: Rating Financial Performance due to Digital Innovation
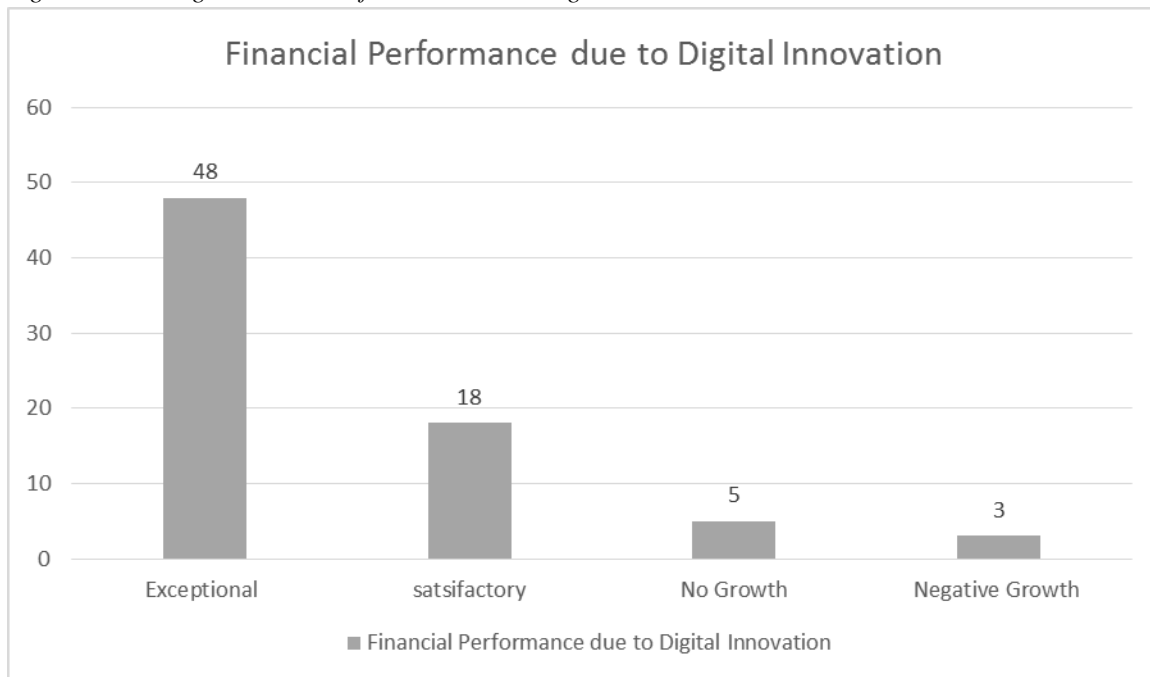
4.4.   Correlation Analysis

The study also sought to find out the relationship between digital innovation and financial performance. Correlation analysis was therefore used, showing how on average, digital innovation platforms used by Forex bureau of Kenya improved financial performance. First, correlation analysis findings are interpreted as follows; If Pearson Correlation is above 0.7, then

there is very high correlation, above 0.5 high correlate, above 0.2 moderate correlations and below 0.2 low correlations (Bell et al., 2018). The findings on correlation analysis between digital innovation and financial performance are provided in Table 4.10.

Table 4.10: Correlation Analysis of Digital Innovation and Financial Performance

		Return-on-Assets	Customer Growth
Mobile Application	Pearson Correlation	-.178	.264[*]
	Sig. (2-tailed)	.130	.023
	N	74	74
Online Forex Trading Platform	Pearson Correlation	.171	.503[**]
	Sig. (2-tailed)	.145	.000
	N	74	74
Automated Office Operation	Pearson Correlation	.329[**]	.077
	Sig. (2-tailed)	.004	.514
	N	74	74
Electronic Money Transfer	Pearson Correlation	.026	.203[*]
	Sig. (2-tailed)	.829	.003
	N	74	74

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

Overall, as Table 4.10 Indicates, the use of digital innovations contributed to some extent of financial performance of forex bureau. The use of mobile application for example moderately contributed to profitability and customer growth as Pearson Correlation of 0.368 and 0.264 indicated respectively. Also, online forex trading platforms contributed to high customer growth as Pearson Correlation of 0.503 showed while use of automated office operation and Electronic money transfer contributed to moderate return on assets and customer growth as Pearson Correlation of 0.329 and 0.203 showed respectively. These findings mean that use of each digital innovation would contribute to specific aspect of financial performance at the bureau.

4.5.   Regression Analysis

Finally, regression analysis was done to facilitate construction of regression model that Forex Bureau can use in understanding how use of digital innovation can contribute to financial performance. The regression model tested was: Y (Financial Performance) = X1(Electronic Funds transfer) + X2(Automated office operations) + X3(Mobile applications) + X4(online Trading Platforms) + Ɛ

The dependent variable represented by the financial performance of the forex bureaus was captured by a weighted mean of the respondents perception of the changes registered over the five years in regard to the firms return on assets, sales growth and profitability. Through use of the five point Likert scale, the mean by the respondents on the three measures was regressed against the weighting of the four independent variables.

First, Model summary was presented to test goodness of fit and findings presented in Table 4.11.

Table 4.11: Model Summary: Goodness of Fit

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.520ᵃ	.702	.228	.553114188462198

a.   Predictors: (Constant), Electronic Funds transfer, Automated office operations, Mobile applications, online Trading Platforms
b.   Dependent Variable: Financial Performance

There findings in Table 4.11 showed high goodness of fit between digital innovation and financial performance of the bureau. The study found strong relationship to exist between digital platforms and financial performance of (R=0.520), an indication of high linear dependency between digital innovation and financial performance at the forex bureau of Kenya.

The coefficient determination denoted as the coefficient R^2 indicated the variation in the digital innovation would lead to variation in financial performance. Evidently, the results showed that

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there was adequate goodness of fit model. There was 0.702(70.2%) variation in financial performance which can be explained by change in implementation of digital innovations such as electronic funds transfer, automated office operations, mobile applications and online trading platforms.

Secondly, variance analysis was conducted and findings presented in Table 4.12.

Table 4.12: ANOVA: Variance analysis

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7.817	4	1.954	6.388	.000[b]
	Residual	21.110	69	.306		
	Total	28.926	73			

a. Dependent Variable: Average Financial performance
b. Predictors: (Constant), Electronic Funds transfer, Automated office operations, Mobile applications, online Trading Platforms

The ANOVA results in Table 4.12 showed difference in means between independent and dependent variables, indicating that there existed statistically significant relationship between digital innovations and financial performance. At Significant Level of 0.000 (P<0.005), digital innovations such as electronic funds transfer, automated office operations, mobile applications, online trading platforms, impacted financial performance of the bureau. The larger value of 6.388 means the between-group variation is larger than your within-group variation. This can be interpreted to mean there is a statistically significant difference in your group means. This shows the model is fit.

Finally, the regression coefficient was conducted to generate the optimal regression model at the Forex bureau of Kenya that would improve the financial performance. Findings are presented in

Table 4.13.

Table 4.13: Regression Coefficient Results

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.607	.912		.665	.508
Mobile Application	.237	.089	.278	2.677	.009
Online Trading Platforms	.383	.126	.381	3.035	.003
Automated Office Operations	.085	.158	.067	.537	.593
Electronic Money Transfer	.149	.159	.098	.941	.350

a. Dependent Variable: Average Financial performance

For mobile application the Beta coefficient was 0.237 with t –value of 2.67 with a p-value <0.05 (B=0.237, t-value=2.667, p-value=0.009) showing significance as P-value,0.009<0.05 For online trading the Beta coefficient was 0.383 with a t-value of 3.035 with a p-value,0.003<0.05 showing significance .For Automated office operations the Beta coefficient was 0.085 with a t-value of .537 with a p-value ,0.593>0.05 indicating less significance while Electronic money transfer the Beta was 0.149 with a t-value of 0.098 with a p-value,0.941>0.05 indicating less significance.

Consequently, Table 4.13 shows, while mobile application and online trading platforms impacts financial performance of bureau moderately to highly, the automated office operations and electronic money transfer had low impact while all the digital innovations were used together at the bureau as B value of 0.237, 0.383. 0.085 and 0.149 showed in that order. Therefore, the findings from regression analysis can be presented as follows in the regression model to show how digital innovations impact financial performance:

Bureau Financial Performance= 0.607+ 0.149 Electronic Money transfer + 0.085 Automated Office Operations + 0.383 Online Trading Platforms + 0.237 Mobile Application.

4.6 Discussion of the findings

The purpose of the study was to determine the impact of digital innovations on the financial performance of Forex bureau firms in Kenya. The specific digital innovations covered included electronic money transfer, automated office applications, online trading platforms and mobile application. A descriptive design facilitates collection of both quantitative and qualitative data using one questionnaire to gather data from 74 Forex Exchange Bureau of Kenya. The data was analysed using SPSS and findings presented in descriptive and inferential statistics. In summary, the research sought to understand how different digital innovations impact financial performance of Forex Exchange Bureau firms in Kenya. The research findings suggest that the forex bureaus had adopted all the four forms of digital applications in their operations, namely; electronic money transfer, online trading, mobile application and automated office automation.

The research findings reveal that of the four digital innovations, the most commonly applied technology were the online trading platform and the automated office operations. This result was informed by the growth of the fintech businesses and the need to interconnect business operations with other financial institutions for ease of intermediation. These platforms were found in former literature by Zwedie (2013) and Waithaka (2018) to be greatly used by financial institutions such as Forex bureau and banks. In line with the current study, Zwedie (2013) concurs that adoption of online trading increased firm outreach, geographic reach of business and reduced the operational cost and that which cumulatively resulted in improved profitability position of the forex bureaus.

In regard to the use of mobile applications by the forex bureaus, the findings reveal that the application was majorly used for customer care, monitoring accounts and orders as well as access to quotes as mean of. In line to the findings by Ngari et al. (2014) and Nyathira (2012), the research acknowledges that digital innovations are effective in accessing quotes quickly and monitoring customer accounts. Similarly, Ngari et al. (2014), Nyathira (2012) and Aduda and Kingoo (2012) also supported the use of mobile applications and other uses of digital innovations

which consistent to present research found online trading platforms to be used to facilitate online trading, meet customer demands and improve competitive advantage of the firm, and ensure real time operations and convenience to customers. These findings indicate that use of mobile application and online trading platforms play critical role in facilitating operations of Forex and improving their performance, which former literature also agreed with.

In relation to the automated office operations, the current study findings suggest that just like th electronic money transfer, these digital innovation allowed transfer of money electrically, expanded commission and interest-based payment and generated more income. These findings are supported in former research by Nyaga (2015) and Abor (2005) who found in unison with the present study discussions that electronic money transfer facilitated generation of income through both commission and pay per transition online. Also, Nyaga (2015), Abor (2005) and Malhotra and Singh (2013) found in agreement with the present study automated office operations to facilitate use of computer-aided software like electronic document management system, facilitate better customer experience, reduce cost of operation and reduce manual workload. The net effect is increased financial performance of the business entities.

In relation to what the combined effect of digital innovation had on the financial performance, the results reveal, the respondents concurred that digital innovation increase profitability, return on assets and customer growth with a mean of 4.12, 4.18 and 3.61 respectively. These findings are supported by Akhisar et al. (2015), El-Chaarani and El-Abiad (2018) and Ho and Mallick (2006) who although did not use the same financial performance measures as this study, they found digital innovation to improve financial performance. A specific study by Zwedie (2012) used same measures such as ROE, RAO and profitability, sowing that banking agency, banks and Forex bureau that used digital innovation improved these forms of financial performance.

Therefore, it is evident that digital innovation can improve financial performance. This can be evidenced by correlation and regression analysis and the former studies. In this study, mobile application increased customer growth and profitability as shown by Pearson correlation of 0.264 and 0.364, online Forex trading platforms highly increased customer growth as Pearson Correlation of 0.503 showed, Automated office operation increased moderately return on assets as Pearson Correlation of 0.329 showed while electronic money transfer increased moderately customer growth as Pearson Correlation of 0.203 showed. Although the former studies did not

show the aspects of financial performance that were impacted by different digital innovations, they overall agreed with this study that digital innovation would improve financial performance. For example, studies like Nyathira (2012), Hernando and Nieto (2005) and Ho and Mallick (2006) used correlation analysis, showing generally financial performance to be improved by use of digital innovation. Indeed, supporting these studies views, the Goodness of fit analyses showed high goodness of digital innovation and financial performance of 0.502, with implementation of digital innovations increasing financial performance by 70.2%. Furthermore, the study found that when digital innovation is used at the Forex Bureau of Kenya, the performance would increase, since their relationship was statistically significant (P-value is 0.000 ANOVA models, which is less than 0.05).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Chapter five summarizes the findings; provide conclusion, recommendation and areas for future research of the study that sought to determine the impact of digital innovations on the financial performance of Forex bureau firms in Kenya. First, summary of key findings is provided, followed by conclusion. Secondly, recommendations are provided, followed by research limitations and areas for future research.

5.2 Summary

The purpose of the study was to determine the effect of digital innovation on the financial performance of Forex bureau firms in Kenya. Specifically, the study sought to determine how electronic money transfer, automated office automation, online trading and mobile application innovations influenced the financial performance of the firms as measured by the respondents' perception on change in ROA, general profitability and customer growth measures. In regard of the common form of digital innovations employed by the forex firms, the results suggests that electronic funds transfer was the most common form of innovation followed by online trading platforms, mobile application and finally automated office application.

The findings suggests that electronic funds transfer digital innovation system had been adopted by all firms with the associated financial results being manifested by the increased commissions and interest income with the potential of further increasing revenue generation streams. However, though the electronic funds transfer had a positive effect on the forex bureaus financial performance, it was not significant. The automated office platforms has increased the current

customer experience through reduction of operational costs and improved efficiency level by reducing the amount of workload required to serve them. The automated office operations innovations had a positive correlation to the financial performance though the relationship was likewise not significant.

The results also shows that the online trading platforms innovations introduced by the Forex bureaus has availed the organizations services in the digital format and thus improved its competitiveness in the financial market being domineered by commercial banks. Similarly, the online trading platforms is associated with improvement in customers' freedom to trade and their convenience of trading from different areas; both within and outside the country. Indeed, the capacity of the customers to trade online and the associated improved firm competitiveness is shown by the variable having a significant effect on the financial performance of the Forex bureaus. In relation to the individual variable coefficients, office operations resulted in to increase return on assets most compared to other digital innovations. As such, the research addressed the objectives of the study, identifying that each digital innovation has critical role in improving specific aspect of financial performance and thus Forex Exchange Bureau firms in Kenya should continue adopting digital innovations to increase their financial performance.

5.3 Conclusion

From the research findings, online trading platforms digital innovation had a positive and significant effect on the financial performance of the Forex bureaus. From this finding, it can be concluded that forex bureaus should consider increasing the number of products that are being offered online since the associated financial results is higher due to lower cost involved and increased customer base. Through the same, online trading platform facilitate real time

completion of customer transaction which eventually results in improved customer loyalty and thus financial foundation of the firm.

In regard to the electronic money transfer, mobile applicability and automation of the office application, the results suggest that though they have positive effect on the Forex bureau financial performance, they are not significant. For the forex bureaus, the results implies since majority of the financial system players have adopted mobile money transfer, mobile applicability and automated their operations, it can no longer act as a source of competitive advantage nor bring a difference in the financial foundation of the firms in comparison to the other forex players in Kenya.

The positive regression coefficient of all the four variables representing digital innovation in the study among the Forex bureaus implies that adoption of the online forex trading, mobile application, automated office application and electronic money transfer increases the financial performance of the forex firms. Therefore, implementation of appropriate digital innovation in business process results in positive financial outcome and should be pursued by all business entities.

5.4 Recommendations of the study

The study concludes electronic money transfer, mobile applicability and automation of the office application had positive effect on the financial performance of the Forex bureaus though the effect is not significant. It is recommended that forex bureau firms in Kenya seek not only to undertake digital innovation but actually identify the ones that differentiate its operations from the other players in the industry. Consequently, it is recommended that the Forex firms come up with a differentiating attribute in their digital innovation that can be a source of competitiveness and therefore retain their current customer base as well as increase gain new customers.

Increasing their geographical reach, especially through targeting of the Diaspora market can be a market niche that can be explored.

The study concludes that online trading innovation platforms resulted in a positive and significant effect on the financial performance of the Forex bureau. This is attributed to the increased number of persons and customers using mobile phones and thus has the potential to increase the volume of transactions that can be undertaken in a given time frame. It is therefore recommended that the Forex firms enhance their online trading platforms by increasing their features and through networking with other financial institutions to increase their product range.

5.5 Limitations of the study

The first limitation was secondary data related to lack of access of secondary financial data that would back the findings of the study. These data would have reviewed if the use of digital technologies the financial performance has improved compared to when the platforms were not in use. However, the major problem research experienced by focusing on the Bureau of Kenya is that they are not required to publish financial statements and thus they do not do so, thus the study lacked such information. Second limitation is related to social desirability that comes with the use of questionnaires. For forex bureau for example, social desirability may have existed due to participants intentionally agreeing with the statements to show that financial performance in their company has been improved by digital innovations even when that is not the case. If such happens, then the findings may not provide amicable recommendations.

The final limitation of the study relates to the research design used. The research mainly utilized descriptive qualitative design. While the design allowed the researcher to statistical and numerical data from questionnaires, that can be analysed using statistical means such as

inferential statistics, helping understand relationship between variables, it has its limitation. The first limitation is that descriptive design gives researcher lesser options when it comes to understanding if digital innovations improved the performance of forex exchange firms, or there are other factors.

Similarly, it is hard to tell if the improved performance was a result of digital innovation, since the research does not case reference on performance before the implementation of digital innovations and after implementation of digital innovations. Therefore, despite the research identifying that digital innovation impact financial performance, it's hard to know the extent if such findings are not compared with financial performance before digital innovations.

5. 6 Suggestions for Further Research

One of the limitations that the research faced was a lack of secondary data considering that the Forex bureaus do not require to publish their financial statements, it is suggested that the research is replicated in other sectors that requires the firms to publish their financial statements. The research can use the same variables but adopt ROA as the only financial performance measure. In the current research the financial performance measures were determined through a perception of the respondents, a move that limits the research findings.

The other recommendation for future research is to move away from descriptive design to casual research, which is best suited for market research, and entails adopting experimental designs to test markets in a controlled setting. This form of research may help have two different sets of independent variables, with one focusing on bureaus exchange financial performance before digital innovation as controlled settings, and the other variables as digital innovations. Such controlled environment may help future research understand the cause and effect of digital

innovations at bureaus exchange firms in Kenya and identify specific digital innovations relevant to the financial performance of Forex Exchange Bureaus.

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Appendix 1: Questionnaire design

Online questionnaire

Welcome to this survey relating to research on the impact of digital innovations on the financial performance of Forex exchange bureaus. The questionnaire is anonymous. Any response you give will not be traced back to any specific respondent. The paper contains 2 sections, which may take you roughly 20 minutes to complete. Please answer all the questions to the best of your knowledge.

Part 1: Demographic information

Please tick where appropriate using tick (√) or cross mark (x)

Q1. Gender

    a. Male

    b. Female

Q2.Age bracket in years

    a. 18-25 years

    b. 26-35 years

    c. 36-45 years

    d. 46-55 years

    e. Above 55 years

Part 2: Multiple-choice questions

Q3. What is your job category/department at the Company?

    a. Administrative

    b. Customer service officer

    c. Management

d. Technical

e. Finance/Accounting

f. Other positions

Q4. How long have you been in this position?

a. Less than 1 year

b. 2-4 years

c. 5-7 years

d. More than 8 years

Q6. To what extent has your company used the following digital innovations?

The Likert is in a scale of 1-5, where, **1=No Extent: 2=Little Extent, 3=Moderate Extent: 4= Great Extent; 5=Very Great Extent**

Digital innovations	1	2	3	4	5
Electronic money transfer					
Online trading platform					
Mobile applications					
Automated office automation					

 Part 3: Likert Scale questions

This section relates to your opinion about the impact of digital innovations and how they impact the financial performance of your firm.

Q7.Kindly tick where appropriate using the following Likert scale the extent you agree with the following statement. Use the following Likert scale, ranging from 1=**No Extent: 2=Little Extent, 3=Moderate Extent: 4=Great Extent; 5=Very Great Extent**

Q7a. Mobile applications

Please indicate the extent to which the firm's customers use of these mobile application services in the bank.

Statement	1	2	3	4	5
Customer care					
Monitoring their accounts					
Access to quotes					
Monitor their orders					

7b.Below are the statements on the impact of mobile applications on the performance of Forex bureaus. Please tick the most appropriate response to you

Using mobile applications has led to- X3	1	2	3	4	5
Increased outreach of the firm by increasing the number of customers					
Unique products and services					
Reduced cost of operations					
Increased the company turnover and profitability					
Reduced marketing costs					
Enabled the company to collect customer data					
Expanded the company's geographical reach					

7c: How do mobile applications affect the financial performance of Forex exchange bureaus?

Q8 Online trading platform

8a: Online trading platform

Kindly indicate the extent you agree with the following statements regarding the impact of online trading platforms on the performance of Forex exchange bureaus. Use the following scale: **1-Strongly disagree, 2=disagree, 3= neutral, 4=agree, 5=strongly agree**

Online Forex trading platform-X4	1	2	3	4	5
All services offered by the firm are alternatively available in digital form such as an online trading platform					
The firm has adopted an online trading platform to meet customer demands in a bid to remain competitive					
The firm has created an online Forex training platform to give customers the freedom to trade in real time while also convenience					

Q8b. In your opinion, what is the influence of online trading platforms on the performance of Forex exchange bureaus in Kenya?

Q9. Automated office operations

Q9a. Automated office operations

Kindly indicate the extent you agree with the following concerning the impact of automation in office operations on the performance of Forex exchange bureaus. Use the following scale: **1-Strongly disagree, 2=disagree, 3= neutral, 4=agree, 5=strongly agree**

Automated office operations- X2	1	2	3	4	5
A variety of computer-based office automation software such as electronic document management systems are in use in the firm					
Automation of office operations have allowed the business to deliver better customer experiences					
Automation of back-office office operations have helped reduce operational costs for the firm					
Automation of office operations for recording entries have allowed the firm to improve efficiency by reducing manual workloads					

9b.In your opinion, what is the influence of automation office operations on the performance of Forex exchange bureaus in Kenya?

Q10. Electronic money transfer

Q10a. Electronic money transfer

Kindly indicate the extent you agree with the following concerning the impact of electronic money transfer on the performance of Forex exchange bureaus. Use the following scale: **1- Strongly disagree, 2=disagree, 3= neutral, 4=agree, 5=strongly agree**

Electronic money transfer- X1	1	2	3	4	5
The firm has an electronic money transfer system to facilitate electronic money transfer					
The use of electronic money transfer has expanded commissions charged-based pay					
Electronic money transfer has increased the interest-based income					

Electronic money transfer has improved the potential to generate income					

Q10b. In your opinion, kindly indicate the influence of electronic money transfer on the financial performance of your Forex exchange bureaus

Q11. Financial performance

Q11a. Kindly indicate the rate you agree with on the achievement level of the financial performance indicated concerning your firm after the adoption or lack of adoption of any of the above digital innovations. Using the following Likert scale, ranging from **1=Very unsuccessful; 2=Unsuccessful; 3=Somehow successful: 4=successful; 5=very successful**

Factors	1	2	3	4	5
General firm's profitability					
Return on assets (Profit/total sales					
Customer growth					

Q11b. Overall, how would you rate the financial performance of your firm after the adoption of any of the above digital innovations?

☐ Exceptional

☐ Satisfactory

☐ No growth

☐ Negative growth

Appendix 2: List of licensed Forex exchange bureaus in Kenya

1. Aristocrats Forex Bureau Ltd

2. Arcade Forex Bureau Ltd

3. Alpha Forex Bureau Ltd

4. Avenue Forex Bureau Ltd

5. Bamburi Forex Bureau Ltd

6. Boston Forex Bureau Limited

7. CBD Forex Bureau Limited

8. Bay Forex Bureau (Nairobi) Ltd

9. Central Forex Bureau Ltd

10. Crater Forex Bureau Ltd

11. Classic Forex Bureau Limited

12. Commercial Forex Bureau Limited

13. Conference Forex Bureau Company Limited

14. Continental Forex Bureau Ltd

15. Cosmos Forex Bureau Ltd

16. Crown Bureau De Change Ltd

17. Dalmar Exchange Bureau Ltd

18. Downtown Cambio Forex Bureau Ltd

19. Forex Bureau Afro Ltd

20. Gala Forex Bureau Ltd

21. Gateway Forex Bureau Ltd

22. Giant Forex Bureau de Change Ltd

23. Give and Take Forex Bureau Ltd

24. Glory Foreign Exchange Bureau

25. GNK Forex Bureau Ltd

26. Green Exchange Forex Bureau Ltd

27. Industrial Area Forex Bureau Ltd

28. Island Forex Bureau Ltd

29. Junction Forex Bureau Limited

30. Kenza Exchange Bureau Ltd

31. La'che Forex Bureau Ltd

32. Legacy Forex Bureau Ltd

33. Leo Forex Bureau Ltd

34. Link Forex Bureau Ltd

35. Magnum Forex Bureau De Change Ltd

36. 35 Maritime Forex Bureau Ltd

37. Metropolitan Bureau De Change Ltd

38. Middletown Forex Bureau Ltd

39. Mona Bureau De Change Ltd

40. Moneypoint Forex Bureau Ltd

41. Morgan Forex Bureau De Change Ltd

42. Mustaqbal Forex Bureau Ltd

43. Muthaiga-ABC Forex Bureau Ltd

44. Nairobi Bureau De Change Ltd

45. Namanga Forex Bureau Ltd

46. Nawal Forex Bureau Ltd

47. Offshore Forex Bureau Limited

48. Pacific Forex Bureau Limited

49. Peaktop Bureau De Change Ltd

50. Pearl Forex Bureau Ltd

51. Pel Forex Bureau Ltd

52. Penguin Forex Bureau Ltd

53. Pwani Forex Bureau Ltd

54. Rand Forex Bureau Limited

55. Regional Forex Bureau Limited

56. Rift Valley Forex Bureau Ltd

57. Safari Forex Bureau Ltd

58. Satellite Forex Bureau Ltd

59. Simba Forex Bureau Limited

60. Sisi Forex Bureau Limited

61. Sky Forex Bureau Limited

62. Solid Exchange Bureau Ltd

63. Southend Forex Bureau Limited

64. Sterling Forex Bureau Ltd

65. Sunny Forex Bureau Limited

66. Taipan Forex Bureau Ltd

67. Tower Forex Bureau Limited

68. Trade Bureau De Change Ltd

69. Travellers Forex Bureau Ltd

70. Travel Point Forex Bureau Limited

71. Union Forex Bureau Ltd

72. Victoria Forex Bureau De Change Ltd

73. Wallstreet Bureau De Change Ltd

74. Yaya Centre Exchange Bureau Ltd