TECHNOLOGY ADOPTION AND FINANCIAL INCLUSION AMONG YOUTH OPERATED BUSINESSES IN NAIROBI CITY COUNTY, KENYA

BY

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A THESIS REPORT SUBMITTED TO THE SCHOOL OF BUSINESS, ECONOMICS AND TOURISM IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN FINANCE OF KENYATTA UNIVERSITY

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DECLARATION

I declare that this thesis is my original work and has not been presented for a degree in any other university or any other award.

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DEDICATION

To my parents Wilfred Peter Nyokwoyo and Pelister Moraa Nyokwoyo for their unending support on whose support and anchorage I have built on to get this far.

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I express my gratitude to the almighty God for bestowing upon me the chance and means to engage in the pursuit of this scholarly dissertation. I am very proud of my instructors for their unwavering commitment to assisting me in pursuing my quest for knowledge, and particularly to my mentors: Dr. Salome Musau and Dr. Margaret Kosgei for devoting a substantial amount of their time and energy in completing my work, as they provided me with the essential guidance and expert counsel throughout the entirety of the dissertation procedure I express my genuine gratitude to the librarians at Kenyatta University for their priceless help in facilitating the acquisition of diverse scholarly resources. Not forgetting my family that has allowed me humble time through the time I endeavored to undertake this challenging but rewarding and satisfying journey.

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OPERATIONAL DEFINITION OF TERMS

Access to credit	Denotes managing to get long term or short-term business loans
Agency services	These are the services provided by a business or corporation on behalf of another business or corporation. These services encompass activities such as the acceptance and withdrawal of funds, the transfer of money, the provision of insurance, the payment of utility bills, the repayment of loans, the topping up of mobile phone credits, and the cash payment of retirement benefits.
Credit Information Sharing	The number of financial service providers registered with CRB,Listing at CRB, Information asymmetry
Financial Inclusion	Refers to Access to financial services, the frequency of deposits per head, the number of loans per head and the amount of savings
Financial Literacy	In the study this is measured by collection of monetary information, Sound judgement on borrowing, Improved savings, Acquired investments and Wealth accumulation
Financial Technology	Innovative business concepts and developing technology that have the potential to revolutionize the financial services industry.
Informal sector	A section of Kenya's economy which is also referred to as the Jua Kali sector is made up small-scale trading activities that are semi-

	organized, unregulated and apply simple technologies in their operational activities
Internet services	Refers to accessibility of loans through technology, accessibility to internet, making deposits and withdrawals online,E-statements,Peer to peer transactions and Secure protocols available.
Mobile banking	It's a type of electronic banking in which users use electronic devices such as smartphones and tablets to access a variety of banking goods and services, as an example savings and credit instruments.
Mobile phone usage	- This is when mobile devices are used to conduct financial transactions. Measured by accessibility to mobile phones,Security,Convenience and Simplicity.
Value of transactions	It is the total revenue generated by various financial transactions
Youth	People aged between 20 to 35 years of age

ABBREVIATIONS AND ACRONYMS

ATMs	Automated Teller Machines
B2B	Business to Business
B2C	Business to Customer
CBK	Central Bank of Kenya
CIS	Credit Information sharing
CMA	Capital Markets Authority
FINTECH	Financial Technology
FSD	Financial sector deepening
ICT	Information and Communication Technology
KBA	Kenya Bankers Association
KNBS	Kenya National Bureau of Statistics
OECD	Organization for Economic Co-operation and Development
P2P	Peer to Peer
SMEs	Small and Medium Enterprises
TAM	Technology Acceptance Model
WB	World Bank

ABSTRACT

Financial inclusion is the cornerstone of savings and investment initiatives among the youth .When many people are financially included, they possess greater access to credit from financial institutions and can create and expand investment opportunities. In addition, the inclusion of youth in financial systems can improve access to financial education and planning, which increases employment opportunities and ensures that previously marginalized and alienated youth are reintegrated into the economy. The purpose of this study was to evaluate the effect of financial technology and literacy on the financial inclusion of youth owned businesses in Nairobi's central business district. Specifically, the study aimed to determine the effect of mobile phone usage, internet usage, agency services, and credit information sharing and test moderation effect of financial literacy. The study was founded on the theories of asymmetry, agency, and financial growth. The researcher targeted a large population of approximately 32100 youth operated business enterprises in Nairobi County, Kenya. Slovin's formulae was used to select 500 respondents aged between 20 and 35 years, per the definition of youth by the Department of youth affairs. The researcher employed a descriptive research methodology. Using open-ended questionnaires, primary information was collected. The researcher conducted an initial inquiry to evaluate the dependability of the research instrument with the objective of determining the instrument's viability. The data analysis procedure was enhanced by employing (SPSS) version 23.0. The findings were presented using diagrams, charts, and tables. The research discovered that the utilization of mobile phones, access to the internet, and the provision of agency services have a noteworthy impact on enhancing the financial inclusion of young individuals. Conversely, the sharing of credit information does not exhibit a substantial influence on the aforementioned outcome. Moreover, the mediating impact of financial literacy was also statistically insignificant. The research findings suggest that the achievement of financial inclusivity for enhancing the participation of young individuals in economic frameworks is facilitated by the utilization of cellular devices, the utilization of online technology, the utilization of services through intermediaries, and the acquisition of financial literacy. Therefore, the formulation of strategies aimed at enhancing financial inclusivity among the youth in Nairobi should prioritize the enlargement of entry and amplification of financial technology solutions.

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Globally, financial inclusion has been recognized as a critical driver of economic development, as it empowers individuals and businesses with the tools and resources needed to participate in formal financial systems (World Bank, 2019). SMEs, in particular, benefit significantly from financial inclusion, as it enables them to access credit, manage cash flows, and expand their operations. Moreover, financial inclusion is instrumental in poverty reduction by providing marginalized and vulnerable groups with opportunities to save, invest, and protect themselves from financial shocks. As the digital space continues to gain popularity, the youth are taking a major lead in its full implementation. The young people are now the largest population groupings with access to technology in most countries especially in the African continent, hence their decisions in financial matters have paramount implications for themselves, the society as well as their country's economy (Komara & Layyinaturrobaniyah, 2020).

According to Cull, Demirgüç-Kunt, and Morduch, 2018, financial inclusion is an important facilitator in decreasing poverty and increasing communal wealth among the various individuals within the economy. However, it is noted that with all the endearing facts in the developing countries largely in Asia, South America and Africa, it is only in Kenya where the formal banking industry only serves 15% of the entire population of the country. This leaves behind the larger population out of the credit arena alongside other financial services that arguably lender them out of the expected catalyst to economic growth and prosperity thereby locking them out of their potential and wealth creation growth prospects (World bank report in financial inclusion, 2018).

On a worldwide scale, and particularly in developing and emerging countries, small and medium businesses rely on cash flow to exist and encounter difficulties in obtaining inexpensive finance. Due to risk perceptions, a lack of credit data, and cost profile, banks and other financial institutions have been underserving the SMEs market (Alexander, 2017). A significant proportion of individuals in the working-age demographic face a dearth of opportunities to avail themselves of financial services, a matter of concern for

international policymakers (Mutegi & Phelister, 2013). Financial inclusion strives to provide financial services as well as assist people in better managing their finances and developing financial talents.

The African context has also followed the same trend as those recorded globally such as those in United Kingdom by Mitton (2008), USA by Fonté (2012) as well as the OECD countries in which case all the authors agree the need for financial technology to achieve greater levels of financial inclusion (Kim, 2016). The ICT, notably the development of mobile phones, is a significant source of economic development in African nations. In 2009, a large number of African nations used informal financing or were financially excluded (88 percent of the population in Mozambique and 41% in Bostwana).

The Kenyan economy has not been left behind in matters relating to financial inclusion and financial technology where financial technology has been given much attention as a key driver to financial inclusion. Financial inclusion has undergone a remarkable growth over the previous ten years largely fueled by the advent of technology and global shifting of business models where urgency and easy of doing business alongside convenience has been the main driver for the need. Formal financial inclusion has developed from 26.7 percent to 82.9% in 2018 whereas comprehensive exclusion has lessened by 30% in the same period under survey (CBK, 2019).

1.1.1Financial Technology

Financial technology, simply denotes the use technology in doing business with the promise of increased access to the customers, robust market penetration, and innovation of new products to serve the current needs of customers as well as quick access to financial services (Findex Database, 2017; Schueffel, 2016). At its most fundamental stage, fintech is used to assist businesses, individuals and business proprietors conduct their financial activity properly, procedures, and lifestyles with the employment of sophisticated software and computer algorithms and, gradually, smartphones. The word "fintech" is a combination of "financial technology" and "financial services" (Kegan 2020). Fintech is a word that was used in the 21st century to characterize the technology applied in well-known financial institutions' back-end software. Conversely, since that time, a change has occurred toward

services that are more focused on the customer and as a consequence, the definition has become more consumer centric. Fintech currently encompasses a range of industries and businesses, which include education, retail banking, raising funds for good causes, and administration of investments, Estevez (2020).

Financial technology allows people to become more financially included by lowering the cost of delivering financial services (African Development Bank, 2014). Financial inclusion is the procedure for making financial services inexpensive and reachable to all enterprises and individuals, irrespective of their net worth or size (Demirgüçe-Kunt *et al*., 2015).

The initial stage of digital finance in Africa entailed the emergence of mobile money, commonly referred to as the inaugural phase. The subsequent phase of digital financial advancement is presently in progress, with a focus on precise resource allocation, personal and corporate insurance, and enhancing small and medium-sized enterprises' ability to obtain external financing. In the region of Sub-Saharan Africa, M-Pesa and mobile money enterprises are being lauded as the upcoming significant phenomenon in the realm of financial technology (Fintech Africa, 2018). As per a research conducted by Nwanko and Nwanko (2014), a significant proportion of individuals residing in economically disadvantaged nations encounter difficulties in obtaining financial services. Due to the relatively modest transaction sizes, the financial sector in these countries considers individuals with limited financial means to be economically unfeasible customers, whereas a significant portion of the population residing in rural areas lacks sufficient support from financial establishments. Mobile money possesses the capacity to boost financial inclusion, based on the African Country Global Findex Database (2017). As of 2014, an increment in the overall number of people holding a bank account in the region has been witnessed.

According to a KNBS survey, nearly 400,000 MSMEs in Kenya were shut before earning a second year of professional experience, raising concerns about the sector's long-term viability (KNBS, 2016). Between 2010 and 2016, 2.2 million SMEs shuttered their doors, according to the research. Kenya is among the nations in which the mobile financial system, encompassing M-Pesa services, agency banking, and internet transaction services,

has made significant progress in the realm of banking and finance technology infrastructure services (Mbiti & Weil, 2011). Since 2006, Kenya's financial inclusion has grown by 56.2 percent, while exclusion has decreased by 30.3 percent (Fin Access, 2019). Since 2006, the landscape of Kenya's financial inclusion has shifted. FinAcces is a company that specializes in financial services. There has been a drop in transitions between the countryside and the towns, between affluent and poor individuals, and between males and women. All of these discrepancies were brought to light by the expansion of ICT, government backing initiative, in addition to the usage of mobile money.

Financial services should be made available, cheap, adequate, and accessible to underserved sections in society while adhering to minimal consumer protection criteria through the use of financial technology. If the government keeps up and offers answers to the risks involved because of administration of services based on financial technologies, the financial inclusion trajectory for the nation will undergo a transformation in the next ten years, allowing all citizens, regardless of wealth status, to benefit from digital payments (Global Findex Database, 2017).

This study used mobile phone usage, internet usage, agency services and credit information sharing as indicators of the independent variable. The choice of the indicators is a result of the fact that the Government of Kenya (GOK) uses these financial technologies for financial inclusion among the youth of Central Business District of Nairobi City County. This also goes for other Kenyans as well as other non-banked citizen’s in the republic (Ministry of Youth affairs 2020).

1.1.2 Financial Inclusion

Financial inclusion implies that individuals and enterprises with financial inclusion enjoy access to financial goods and services that are both practical and inexpensive and fulfill their requirements, for example transactions, payments, savings, credit, and insurance, all of these services are provided in a responsible and long-term way (World Bank, 2020). A transaction account, which allows people to retain money and receive and transfer money, is the initial stage towards wider financial inclusion. A transaction account serves as a portal to the rest of financial services, this is why the World Bank has prioritized to

guarantee that the vast majority of individuals have access to accounts through which they may do business, with a particular focus on vulnerable groups for example low-income groups, at a reasonable cost, utilizing a method that is both clear and honest by financial regulators (Chakrabarty, 2010). The objective is to establish a broad array of financial products at a reasonable price and make them accessible to all segments of the population, particularly those with lower incomes who are the primary earners (Joshi, 2010). According to Atieno (2001) financial inclusion is the accessibility of adequate financial and payment services as well as adequate credit at a reasonable cost to a vast range of population specifically the underprivileged and the low-income earners. It has varied definitions among them, ease with which financial services could be accessed, availabili1ty and affordability (Sarma, 2008). The concept has been examined by other scholars (Fungacuva & Weilli, 2014) with a focus on utilization rather than the quality of the services rendered.

The level of financial inclusion varies from country to country depending on the stage of development of each. The most financially isolated societies are China and India, which are ranked top and second, respectively. Generally, the weakest elements of society are usually entirely overlooked by formal financial organizations in their pursuit of rapid profits. Financial inclusion, also known as inclusive finance, is the provision of financial services at a realistic cost. It is also the process of ensuring vulnerable populations, such as the weaker portions of the economy, have timely and sufficient access to financial services and credit when they require it (World Bank, 2020).

Access to financial services, the amount of money in a person's bank account or loan, and the frequency and amount of savings made by account holders have all been used to measure financial inclusion, with majority of researchers agreeing on the application of variables like access to financial services, the amount of money in a person's bank account or loan, and the frequency and amount of savings made by account holders as measurement measures that improve financial inclusion (Danjuma, 2018). Financial inclusion is majorly measured to serve two objectives which includes assessing and monitoring levels of financial inclusion as well as gaining a better comprehension of the variables that influence

them (Hannig & Jansen, 2010). According to Sarma and Pais (2011), a country's degree of human development and financial inclusion are inextricably linked.

The utilization of cellular devices and internet connectivity as a component of financial inclusivity had a noteworthy contribution on financial loss experienced by the 43 Kenyan banking institutions (Musau, Muathe & Mwangi, 2018). The internet banking system has been identified by other academics as a crucial element of financial technology, particularly in the context of digital banking. Melubo and Musau (2020), for example, realized that credit access factors of female-centric enterprises in Narok were made prominent via bank agents, mobile, and online banking, along with ATM services. The present investigation assessed financial technology by means of mobile phone utilization, internet utilization, agency services, and credit information dissemination.

This research employed the frequency of individuals' utilization of financial services, the average number of deposits made per person, and the levels of savings as indicators of the extent of financial inclusion among young individuals in the Central Business District of Nairobi City County, located in Kenya.

1.1.3 Financial Literacy

Financial awareness pertains to the ability to comprehend and utilize monetary concepts and unanticipated events along with the competencies, drive, and self-assurance to utilize that knowledge in order to improve individual and societal financial welfare (Saeedi & Hamedi, 2018). The majority of authors employ the terms financial literacy, financial capability, and financial knowledge or education in an interchangeable manner. Understanding the optimal utilization of monetary resources for both individual and commercial purposes constitutes a crucial element in maintaining a sound fiscal well-being (Michelle, 2016).

Financial literacy is becoming increasingly crucial in today's environment. People's financial experience greatly aids their capacity to explain various financial or economic behaviour, especially in the domains of economics and finance. Financial literacy, or the ability to understand fundamental financial ideas, has a significant impact on economic agents' decision-making. Over time, people have become more active agents who are

responsible for their financial planning than they were earlier. In reality, recent crises have disproportionately impacted the illiterate and unskilled. This increased accountability might have stemmed from a humane desire to protect oneself. On the one hand, the global financial crisis of 2008, often known as the subprime mortgage crisis, might be credited with bringing financial literacy to the fore. (Mandell & Klein, 2009; Robb & Woodyard, 2011; Shahrabani, 2012). The two primary obstacles, on the other hand, may have a part in the importance of financial awareness (Rooij, Lusardi & Alessi, 2007). To begin with, the large range of financial goods available, many of which are complicated and difficult to comprehend, need a thorough understanding of financial concepts and issues. First, according to Mandell and Klein (2009), the deregulation of financial markets has increased the variety of financial products accessible in the United States. Second, the most recent change in the field of social security in the United States, if not the entire world, requires individuals to take an active role in their financial management. Understanding financial concepts and identifying financial instruments seems to be critical for all financial decisions that people make in some way.

This study used financial literacy as the moderating variable between financial technology and financial inclusion. This is because the researcher theorizes the fact that more financial knowledge opens horizons of sound decision making on financial matters. Furthermore, several research have found that financial knowledge affects risk perceptions in investments. Diacon (2004) found substantial discrepancies between financial specialists and laypeople with less financial understanding as compared to financial professionals.

As a result, lay people are more risk apprehensive than financial professionals and are more susceptible to association bias (i.e., locating suppliers and salespeople who are more trustworthy than ordinary people). Also, persons who are seen to have less financial understanding are more prone to believe that financial goods are overly difficult. Authors performing a risk perceptions survey in Switzerland (Wang, Keller, & Siegrist, 2011) found a strong correlation between knowledge-related measures and risk-related scales in another study (Wang, Keller, &Siegrist, 2011). They also found that participants thought some investment items were more intelligible and that the same products were less hazardous.

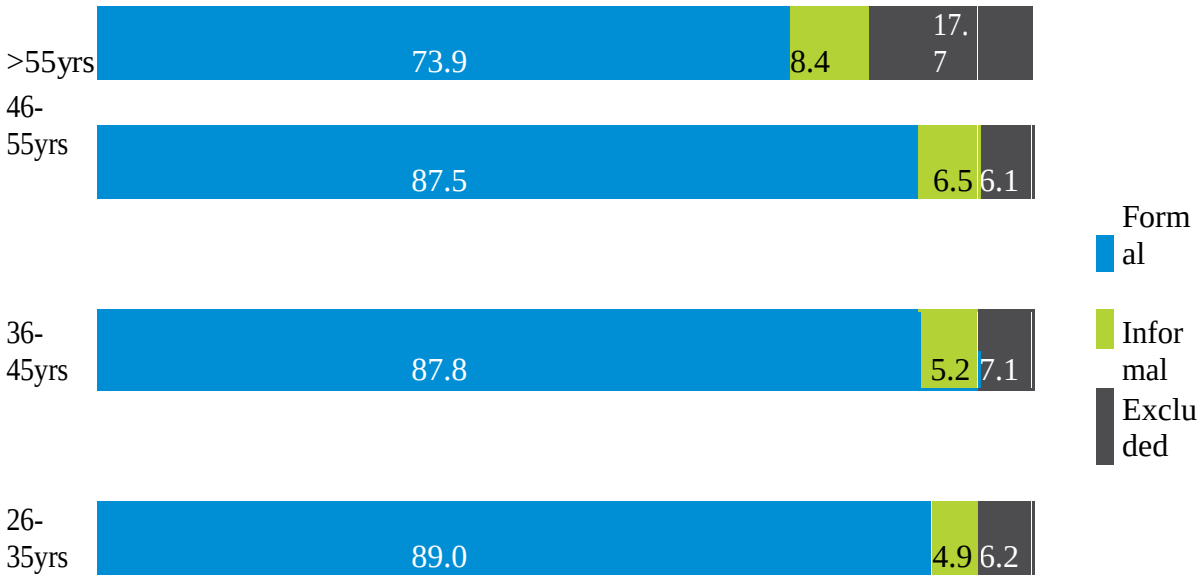
As a result, financial literacy would have a stronger impact in financial situations than previously assumed.

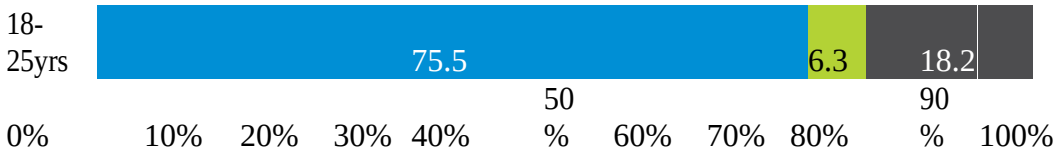
1.1.4 Youth Operated Businesses

Advancement in technology among the youth in developed economies has presented a great challenge to the developing economies such as Kenya which still has gaps in equipping the youth with the relevant and advanced digital and knowledge divides. In terms of technology, the youth are dominating in collecting, storing, retrieving as well as sharing information using the ICT devices more accurately, timely and clearly. Amidst this, there is a desert of literature on the link amongst in-depth field working with youths, new technology, as well as community improvement (UNCTAD, 2020).

In Kenya, the exponential expansion of the young population has emerged as the single most pressing development concern of our time. When seen in the perspective of the 2008 post-election violence, a large number of idle adolescents becomes a ticking time bomb for the country. Idle youngsters, whether working or not, are open to exploitation and instigation, necessitating active involvement in constructive activities (Hope, 2012). The figure below indicates the level of financial inclusivity by age in Kenya.

Figure 1.1: Access by age





Source: KNBS (2020)

1.2 Statement of the Problem

Financial inclusion in Nairobi County according to a survey done by the KNBS in 2019 stood at 22% among the youth which is quite low considering there are quite a huge number of youths within Nairobi due to the rural-urban migration (KNBS 2019). Despite the progress made thus far, the CBK 2020 poll finds that affordability and consumer protection problems such as surprising fees are still a barrier to official service access. Even more striking is the relative insignificance of formal financial access' influence on development. Many Kenyans have numerous types of official accounts, but they are infrequently used since they do not solve real-world difficulties for many families, small and micro companies, and farmers (FAO 2020).

According to data, the demographic segment of 26–35 years old has the greatest access to financing (Figure 1.1). The majority of respondents the aged between 18 and 25 and those over 55 are financially disadvantaged. Major challenges attributed to the outcomes were factors related to access, trust, identification requirements, awareness and associated cost implications (Kippra, 2020).

Based on the examined body of scholarly work, it is indisputable that fintech exerts a substantial influence on the promotion of financial inclusivity. The rate of technological advancement advances swiftly, and the efficient integration of the relevant technology in financial inclusivity empowers enterprises to sustain a competitive advantage in the current dynamic and competitive business environment. While financial inclusion incorporates both formal and the informal sectors in accessing to financial products, the use of technology is very key in achieving this (Sarma, 2008).

According to the latest statistics from the Kenya National Bureau of Statistics (KNBS), the Kenyan population is predominantly made up of young, who have increased by 26% from 37.7 million in 2009 to 47.6 million in 2019, an increase of 9.9 million. This implies that

the Kenyan market is made up of the youth who form 75% of the total population. It is evident that the same growth trend is seen in the technological space with most of the youth being technologically literate. Most of the financial institutions have embraced technology in their operations in what is currently called FinTech as a platform to expand the customer base through financial inclusion.

The topic of financial inclusion measurement may help to explain some of the factors that influence financial inclusion. Examining the elements that have an impact on financial inclusion is particularly difficult because there is no universal measure of financial inclusion. The main difficulty in this case is a lack of data (Claesens, 2006; Beck, Demirguce-Kunt, & Honohhan, 2009). Adding to the previous researches Sarmie (2008), other studies such as Sarma, (2010); Arora, 2010; Beck, Chakravarty & Pal, 2010; Prathape, 2011; Gupte, Venkatramani, & Gupta, 2012) created the financial inclusion indexes. With the use of these indexes, researchers have made tremendous progress in determining the factors that influence financial inclusion.

1.3 Objectives of the Study

1.3.1 General Objective

The primary aim of this research was to examine the effect of financial technology on financial inclusion among the youth operated businesses in the Nairobi City County. Kenya

1.3.2 Specific Objectives

The specific objectives of the study were:

i. To establish the effect of mobile phone usage on financial inclusion among youth operated businesses in Nairobi City County, Kenya.
ii. To examine the effect of internet usage on financial inclusion among youth operated businesses in Nairobi City County, Kenya.
iii. To establish the effect of agency services on financial inclusion among youth operated businesses in Nairobi City County, Kenya.
iv. To determine the effect of credit information sharing on financial inclusion among youth operated businesses in Nairobi City County, Kenya.

v. To examine the moderating effect of financial literacy on the relationship between Financial Technology and financial inclusion among youth operated businesses in central business district, Nairobi County, Kenya.

1.4 Research Hypothesis

The research's null hypotheses were;

H_{01}: Mobile phone usage has no significant effect on financial inclusion among youth operated businesses in Nairobi City County, Kenya.

H_{02}: Internet usage has no significant effect on financial inclusion among youth operated businesses in Nairobi City County, Kenya.

H_{03}: Agency services have no significant effect on financial inclusion among youth operated businesses in Nairobi City County, Kenya.

H_{04}: Credit Information Sharing has no significant effect on financial inclusion among youth operated businesses in Nairobi City County, Kenya.

H_{05}: Financial literacy has no significant moderation effect the relationship between Financial Technology and financial inclusion among youth operated businesses in Nairobi City County, Kenya.

1.5 Significance of the Study

The outcomes of the research may hold significance in relation to policymaking information to the ministry of Financing and the department responsible for matters pertaining to youth affairs and enterprising by making use of the relevant empirically associated scientific studies of valuable findings to base their studies in their decision-making quest. It will also serve to inform them on the status of the youthful population in financial technology and the extent of cover on financial services, including access to credit which by extension serves to empower them through local investments as they seek self-employments and generation of capital.

Financial institutions such as commercial banks, microfinance institutions, deposit taking instructions as well as SACCOs will make use of the research finding in growing their customer base. They will appreciate the role of technology in improving their service delivery among the youth. They are to equally understand the available potential and areas

to explore in their growth journey and even the future in their financial services as pertains uptake and customer retention.

This study will assist scholars and students of finance in expanding their knowledge base in the topic by supplementing existing literature on financial technology and Financial Inclusion. In addition to recommending possibilities for future research, the study might be beneficial as a source of reference information.

1.6 Scope of the Study

The focus of this academic inquiry was assess the interlinkage between aspects of innovative financial services of digital platforms and inclusiveness of youth operated businesses in Nairobi city County, Kenya. The investigation's dimensions that influenced the independent variable encompassed mobile phone utilization, internet utilization, agency provisions, credit information dissemination, and financial knowledge. Consequently, the dimensions of availability, accessibility, and utilization of the financial technology were employed to assess the dependent variable, namely financial inclusion. The study centered on individuals within the age bracket of 25-35 years, which aligns with the youth classification as defined by the department responsible for matters pertaining to young people. These individuals were involved in commercial endeavors within the central business area (CBD) of Nairobi's capital. A sample size of 500 participants had been selected as the quantity was deemed relatively feasible for a sample survey.

1.7 Limitations of the Study

The inquiry oversaw various constraints as they were restricted to the youth operating enterprises within Nairobi County and did not encompass the entirety of Kenya. In addition, it was limited to youth age group of aged 25 to 35, which ignored those below the ages of 20 and actively involved in small trade business ventures. This means that the results may not be applicable to other areas or other age groups. The sample size was also restricted to 500 respondents, which may not have provided a full assessment of the assessing variables, thus not reflective of the entire population. Furthermore, the study did

not take into account other characteristics such as socioeconomic position, education level, or gender, which might have influenced the study's findings. Furthermore, the survey was done in Nairobi's CBD, which may not offer typical results for the entire county.

1.8 Organization of the Study

The study included several sections and chapters, with the first presenting the contextual information of the investigation, the research quandary, the research goals, the study's suppositions, value and constraints. Chapter two delved into the realm of empirical investigations, thus identifying research deficiencies and presenting the conceptual framework. The third chapter encompassed research methodology followed in data analysis. The fourth and fifth section presents the outcomes in accordance with the variable. Chapter five encompasses an overview, deductions, and proposals of the investigation, along with recommended domains for subsequent examination.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

Chapter two proceeds to examine the theories and prior research pertaining to financial technology and financial inclusion, elucidating the deficiencies overlooked by said studies and suggesting the means by which said shortcomings will be addressed by the proposed investigation. The chapter concludes by presenting the theoretical framework that illustrates the presumed association, between the response-predictor variables employed in this investigation.

2.2 Theoretical Review

Numerous theories and viewpoints have been posited by earlier researchers in similar studies. Nevertheless, there exist numerous industrial viewpoints that elucidate notions and associations in connection to the variables of this investigation. This research is based on the theories of information asymmetry, agency, and financial growth.

2.2.1 Information Asymmetry Theory

This is an imbalanced information awareness which occurs where there is a disparity in knowledge between two parties, wherein one possesses information that is not accessible to the other and therefore remains unaware of it. This phenomenon can be leveraged by the entity that capitalizes on the disparities in knowledge allocation in order to attain a competitive edge. Information asymmetries can arise among participants in financial markets in general, and specifically in secondary credit markets, through the process of characterization (Leland & Pyle, 2012). The primary inquiry revolves around whether a

more knowledgeable participant in the market exploits their informational superiority to modify the structure of the market and manipulate price patterns.

As per Robinson's (2001) assertion, this particular theory posits that the ability of banks to effectively engage in collaborative efforts with informal financiers is hindered due to the fact that informal financiers possess a greater amount of information regarding credit applicants, which cannot be acquired by formal institutions at a reasonable expense. Given that specific sources of repayment depend on the ability to access public capital markets, the presence of information asymmetry could potentially impact the availability and utilization of lines of credit (Hardin & Hill, 2010). The inclination of lenders to provide loans is influenced by the presence of information asymmetry, which is accompanied by uncertainty regarding the performance of bank credit. It is highly certain that borrowers will bear a substantial proportion of the surveillance expenses through elevated interest rates and fees associated with data collection, potentially leading certain borrowers to utilize bank credit facilities less frequently. Moreover, if the oversight is insufficient and lenders are incapable of erasing data, there is a possibility that uneven bank loans might be restricted (Nyangweso, 2013). These variables have a noteworthy effect on the lending lending behavior of business banks.

Banks and other financial institutions can enhance their understanding of applicants' characteristics, historical behavior, and present debt exposure by exchanging information about their clients. In theory, taking steps to reduce information asymmetry might help lenders avoid making bad decisions, in addition to improving borrowers' incentives to pay back, both directly and indirectly, through altering credit market competitiveness (Brown, Jappelli & Pagano, 2009). The key difficulty in overcoming current information

asymmetries is the safe conveyance of information. Enhanced information flows contribute to the adequacy and durability of the overall financial system. Based on the scholarly investigation, the exchange of credit information diminishes the presence of information asymmetry, consequently mitigating the occurrence of non-performing loans for financial institutions and enhancing their performance in the credit market. This theory is pertinent to the sharing of credit information.

2.2.2 Agency Theory

The theory examines a multitude of difficulties that emerge from agency relationships and the methods employed to address them (Jensen and Meckling, 1976). The establishment is formed when principals enlist an agent to manage the organization in accordance with the principal's specifications. According to Padilla (2002), it is contended that the management and employees of a company may prioritize their own interests to the detriment of investors. As a result, shareholders necessitate agents who will act in a trustworthy manner. Hence, agents are anticipated to execute their duties in accordance with principal directives and anticipation in order to minimize discord and optimize principal's welfare. The notion of agency services focuses on delivering infrastructure that accommodates customers' needs in order to promote effective financial services. This theory was intentionally formulated to separate ownership from management (Bhimani, 2008). The adaptation of agency banking varies among commercial banks, with developing economies encountering difficulties in implementation as a result of infrastructure and legal obstacles (Cetorelli & Goldberg, 2012). The analysis of the theory holds significance as agency services constitute a component of the independent variable that exerts an impact on financial inclusion.

The agency theory of financial inclusion argues that designated representatives ought to provide official financial services to individuals who are marginalized. As a result of the characteristics of remote communities, their residents, or topography, the provision of official financial services to individuals without access to banking facilities may present challenges (FAO, 2019). Consequently, the utilization of specialized intermediaries to provide formal financial services to individuals belonging to marginalized populations is necessary. The special agent, according to this theory, should be a professional and highly trained agent who is familiar with the characteristics of the marginalized population, recognizes the current informal financial system in areas where the population's marginalized individuals live, identify areas where you might improve by bringing new ideas to the table, and create a method for integrating the informal financial system in marginalized communities with the official banking system.

The special agent is seen as knowledgeable, talented, and capable of bringing the underserved people into the official financial system in order for them to benefit from formal financial services (Keeler, 2011). This theory proposes that an agent-principal relationship exists. The principal is frequently a federal government, a government of another country, or an international organization, whereas the special agent is frequently a local financial institution, a financial institution that is not a bank, or an unique organization established for the exclusive aim of attaining certain financial inclusion goals. Financial institutions and technical firms can potentially act as special agents, according to FinAcces (2009). This theory is relevant because it anchors the variable of agency services.

2.2.3 Finance Growth Theory

Financial technology and financial inclusion have a meaningful link that may be comprehended in the framework of the finance growth theory. Financial inclusion generates a pleasant atmosphere for economic growth, according to the finance growth theory (Bagehott, 1973). This theory advocates for financial stability, which is characterized by the seamless functioning of the financial intermediation process.

Consequently, the presence of a flourishing financial industry enhances the rate of economic expansion. According to Schumpeter's (1911) analysis, the emergence of financial technology has created novel avenues for promoting financial inclusivity, thereby enabling an economy to flourish by providing streamlined platforms for the allocation of capital. Ndebbio's (2004) study found that financial systems help the economy grow. Financial markets experience fluctuations in reaction to the growing demand for financial services in a burgeoning economy. Consequently, the expansion of financial spectrum to include the youth operating businesses correspond with economic advancements via vibrant lenders. This is the conceptual framework that underlies the financial inclusion construct, which functions as the dependent variable in the study.

2.3 Empirical Review

This section presents earlier researches on financial technology and financial inclusion. This section delineates these investigations in alignment with the research objectives of the scholar.

2.3.1 Mobile Phone Usage and Financial Inclusion

In a study conducted by Ngugi (2015), deduced that the adoption of mobile-based financial transfer services has a positive effect on the promotion of financial inclusiveness. The inquiry realize that the utilization of mobile banking facilities has led to a noteworthy revolution in the expansion of financial markets, primarily through the progression of financial products associated with mobile money, particularly in the Kenyan context. The research centered on the wider populace, while the current study targets the younger age group as the object of examination. More pertinent issues arise of mobile phone usage across age groups which can be exploited to enhance financial inclusion amongst the youth. The context of the study by Ngugi was the Kenyan population while the proposed study will focus on youths from Nairobi City County. The interests of the youth across the republic is sometimes different dependent on the geography of the location and therefore require different financial inclusion interventions by the funders. Whereas the study used purely secondary data, this study will use primary and secondary data and thereby bridging the methodological gap arising from the previous study.

By using both primary and secondary data this study will triangulate the findings and drawing more insightful conclusions. The methodology used in data collection and interpretation is given credibility by collecting information from various sources and making inferences from other scholars. Further, analysis by CBK is on macro-economic level and is drawn from certain trends and traits and the extrapolated to give a national outlook and conclusions for the whole country. Primary data collection ensures that the researcher is getting firsthand information from the targeted population and comparing that

with the national statistics as portrayed on journals, periodicals and other literature and tends to be more accurate (Salkind, 2010).

George (2012) conducted a research investigating the enablers of mobile banking services in the Kenya's capital. The analysis focused on evaluating three separate classifications of financial services, namely: mobile money transfers, mobile transactions, and mobile banking. This assessment involved the consideration of different explanatory variables, including age, gender, and educational attainment, as well as service fees. To estimate the volume of transactions, a multinomial logit model was employed. The research findings revealed that the acceptance of progressively intricate financial services, such as mobile transactions and banking, is impacted by various factors, including an individual's gender, wealth, and literacy level. Furthermore, the rates of service adoption and the volume of transactions also play a role in this phenomenon. The study's suggestions include developing gender-sensitive financial goods and services that are responsive to low-income earners, as well as increasing financial service knowledge in both urban and rural locations (OECD, 2019).

The study however focused more on the mode of money transfers available and factors affecting the choice of each. This study will address different variables of mobile phone usage, internet usage, agency services and credit information sharing with the aim being to establish how those variables influence financial inclusion. The conceptual gap will therefore be dealt with in the current study. Given the underlying assumption of the multinomial logistic regression model that the data are specific to each case, wherein every independent variable possesses a singular value for each instance, a methodological

discrepancy arises. According to the multinomial logistic model, it is not possible to accurately forecast the dependent variable based on the independent variables in any given scenario. The explanatory variables may not necessarily require statistical independence from one another, as exemplified by the linear regression employed in this investigation (Garson, 2011).

The assessment by Mulwa (2012) in Makueni County investigated the significance of diverse wireless networking in facilitating financial inclusivity, and encompasses both narrative and numeric data sets. According to the findings translation required to realize that items were context particularly; the interaction of all the participants (human and nonhuman) was critical to the stability of mobile banking solutions and what arises as a result of this interaction. The degree to which major players are loyal to their alliances determines the success of translations. According to the report, authorities should reform legislation to foster market growth, awareness campaigns and literacy workshops for remote populations should be increased by focused actors, agents should be financially supported, and assistants should be trained.

The research was primarily centered on the establishment of economic literacy among the rural participants. This research primarily concentrates on the issues of financial inclusivity among the younger population in the central business district of Nairobi City County in Kenya. The requirements of the populace in urban and rural regions vary, as determined by the geographical positioning of each. The level of awareness and literacy is higher in Nairobi than in the rural and other urban centers. So, the study is contextually different.

2.3.2 Internet Usage and Financial Inclusion

In reviewing the usage of the internet and financial inclusion, the researcher has found that this is variable is mostly discussed in the context of mobile phones. The explanation for this could be most mobile phones in the market are internet enabled and are used as the tools to access internet. The use of mobile phones and the Internet to deliver financial services has emerged as a new option to provide un-banked individuals broader access to the formal financial system (Thulani et al. 2014). Many safe and easy services are available through e-banking, including round the clock banking, bill payment, deposits made over the internet, People-to-person and bank-to-bank money transfers, delivery of messages on schedule, round-the-clock contact centers, and the purchasing of tickets for planes and trains.

In a study done in African nations, Andrianaivoh and Kpodar (2012) discovered a positive and substantial association between financial inclusion and pervasiveness of mobile phones. Using a panel dataset of 61 low- and nations with a moderate income, came to the same conclusion: mobile phone usage can enhance financial inclusion.

In a study involving Swedish customers, discovered that implementation of a new mode payment is linked to apparent user-friendliness, age, income, trust, and users' perceptions of security threats. Security is a big concern in mobile payments, with research indicating that server security flaws might allow attackers to get access to customers' accounts (Haupertet al., 2017).

Seng (2017) claims that mobile phones have a favorable influence on both formal and casual borrowing, based on a study done in Cambodia. Another study done by Lenka and

Barik (2018) in the nations of the South Asian Association for Regional Cooperation (SAARC) found a link between mobile and Internet growth and financial inclusion. This study will additionally include internet usage as a measure of financial technology.

In a study conducted by Efremidou et al. (2014), an investigation was carried out to examine the determinants that influence the utilization of electronic banking services among a sample of 150 customers from Greek financial institutions. The findings demonstrate that the determinants influencing the utilization of electronic banking services by Greek bank clients are the security of transactions and user contentment. Additionally, it was discovered that trust plays a pivotal role and exerts a significant impact on customers' decision-making process regarding the adoption of electronic banking services. Sionfou (2015) conducted a study employing the Auto Regressive Distributed Lag (ARDL) the methodology employed to examine the impact of Information and Communication Technology (ICT) on financial inclusivity in the constituent nations of the West African Economic and Monetary Union (WAEMU). The outcome realized a prominent association between the variables. This research sought to address the geographic and population contexts in Kenya.

2.3.3 Agency Services and Financial Inclusion

According to Seeku (2015), the end of 2013, Kenya's bankable financial exclusivity rate has dropped to 25% from 37% in 2009. Commercial and microfinance banks were permitted to open Agencies on November 22nd, 2010, in accordance with the Government of Kenya's Vision 2030 of complete financial inclusion, to bank the majority of Kenya's un-banked and underbanked community in the suburban, rural, and isolated areas with a diverse set of financial (Barrett &Michael 2010).

In terms of financial inclusion, agents provide several benefits to both the bank and the agent, including increased savings mobilization, increased public awareness and output on commercial banks' perspective, and commissions for agents. Branches with the smallest number of branches- Productivity gains in direct branches resulted in higher revenues from interest and transactional income, as well as the ability to target a new client category and expand market share. Mobilizer of low-cost deposits. Increase the geographic reach (CBK 2019). Create a virtual bank without having to invest in infrastructure, and operate at a minimal cost (no wage, no utilities, and no repair bills.) Financial hours are prolonged once the banks have closed, on public holidays, weekends, allowing customers access to banking services and bringing services closer to them (Jahan& Brad2011).

A research conducted by Cohen, Hopkins, and Leeh (2008), a significant number of families with limited income still face challenges in accessing conventional or partially conventional financial services. This is predicated on the assumption that these households reside in regions marked by sparse population densities, thereby escalating the expenses associated with distributing goods through existing provider operational frameworks. Alternatively, it could be posited that the presence of transaction costs renders commodities prohibitively costly for the most economically disadvantaged individuals in society, leading to their exclusion or voluntary withdrawal. Furthermore, according to a research conducted by Ivatury and Mass, (2008), agency banking, a type of banking that operates without physical branches, has garnered substantial interest because of its capacity to provide cash assistance many people living in close proximity to the lower end of the socioeconomic hierarchy.

Technology adoption, particularly in financial institutions, has acquired significant traction and developed at an astonishing rate over the world, according to Arorah and Ferrand (2007). Considering the significance of banking systems, their widespread availability, and low cost, agent banking has a lot of promise for providing financial services to the unbanked. On the contrary, technology systems are vulnerable cyber security, making them unsuitable for financial transactions. Based on current agent banking models, technology dangers connected to information and data security have been highlighted, keeping clients in the dark. (Owen, 2006).

Owen (2006) stated that financial institutions must prepare and invest in long-term success and support its agents in order for them to reach the intended clients within a defined demographic. This necessitates tight harmonization/teamwork with agents, as well as probabilities for them to discover more and improve their productivity, as well as a reasonable price structure for the services they offer (Arora & Ferrand, 2007). Banks have been greatly influenced in their operations as technology advances at a rapid rate, with the implementation of technology assuring prompt and effective services to clienteles. Banking agents, on the other hand, do not upgrade their systems as frequently as they should, resulting in system failure and also transaction execution delays (Lyman, et al, 2000). This causes client dissatisfaction and a lack of faith in the security/safety of transactions made through agent banks. Furthermore, due to the frequent system failures, transactions with banking agents are subject to fraud. Despite extraordinary worldwide interest and excitement from any development organization or corporate entity, it is claimed that branchless banking fails to give a one-size-fits-all answer to financial interests of the diverse populace (Ivatury& Pickens, 2006).

A study about branchless banking and financial inclusion in Colombia was conducted by Lozano and Mandrile (2010). The scholars investigated the present condition of branchless banking in Colombia as a constituent of the government's endeavor to augment the accessibility of financial services via non-bank correspondents (NBCs). According to the research, the Colombian government decided to implement a branchless banking system that relies on non-financial organizations offering financial services autonomously, as a means of augmenting financial inclusivity in response to inadequate oversight and supervision of these entities. Consequently, the agency banking paradigm emerged. Notwithstanding this, the survey revealed that the banking sector in Colombia has exhibited a sluggish inclination towards embracing branchless banking alternatives. Since a result, financial deepening has been stymied, as the banking industry has shown little interest in improving financial access to low-income people.

2.3.4 Credit Information Sharing and Financial inclusion

A study by Ngugi and Nasieku (2016) investigates the impact of credit information sharing on credit risk reduction in Kenyan commercial banks. The study employs a quantitative approach, analyzing secondary data from the Central Bank of Kenya on non-performing loan (NPL) ratios and credit bureau membership among commercial banks. They utilize regression analysis to assess the relationship between credit information sharing and NPL ratios. The study finds a positive correlation between credit information sharing and reduced credit risk. Banks with access to a borrower's comprehensive credit history through credit bureaus are more likely to make informed lending decisions, leading to lower NPL ratios. The study suggests that credit information sharing plays a significant role in mitigating credit risk for commercial banks in Kenya.

A study by Kowalewski and Pisany (2022) explores the combined effects of Fintech credit, credit information sharing, and bank stability across various countries. The research employs a panel regression analysis using data from the World Bank's Global Findex Database and credit bureau coverage information. They analyze the relationship between Fintech credit penetration, credit information sharing practices, and measures of bank stability like capital adequacy ratios. The study suggests that the combined effect of Fintech credit and credit information sharing leads to a more stable banking system. They find that credit information sharing moderates the potential risks associated with the expansion of Fintech credit. The study highlights the importance of a synergistic approach, where credit information sharing complements the growth of Fintech credit to promote financial stability.

Ongore and Irungu (2013) examined the effectiveness of credit risk management practices in minimizing loan defaults in Kenyan commercial banks. The research employs a survey-based approach, gathering data from loan officers and credit risk management specialists in Kenyan banks. They analyze responses to assess practices like credit appraisal processes, loan monitoring, and portfolio diversification. The study identifies a positive association between robust credit risk management practices and lower loan default rates. It highlights the need for continuous improvement in credit assessment methods and risk management strategies. The research suggests that effective credit risk management plays a crucial role in managing loan defaults for commercial banks in Kenya.

2.3.5 Financial technology, Financial Literacy and Financial Inclusion

Dannenberg and Lakes (2014) investigated the effect of mobile phones in financial literacy among Kenyan small-scale farmers in the Mount Kenya region, as well as its implications for their small-scale farming. Expert interviews and questionnaires were applied to compile the data. According to the findings of the study, mobile phones are used for four different forms of exchange: networking and organization, difficult financial knowledge, financial information, and financial transactions. Small-scale farmers' understanding of integration in the worldwide value chain, competitiveness, knowledge transfer, marketing, production, and payment were also shown to be improved by using mobile phones, according to the researchers.

The study's sample was drawn from Kenya, where small-scale vegetable and fruit growers were chosen. Ali-O Lubandwa, Kathuri, Odero-Wanga, and Shivoga (2011) selected two hundred small-scale farmers from Busia, Mt. Elgon, Bungoma, and Lugari districts using systematic sampling. They were chosen with care by the researchers. They used the same process to choose extension workers. Participants were interviewed and open and closed-ended questionnaires were prepared and analyzed through descriptive statistics. The findings discovered that small-scale farmers in the western area lack enough understanding of financial goods and services, as well as technical know-how and optimum agricultural practices. Furthermore, the findings revealed that farmers lack the financial stability required to get low-interest financing.

In a study conducted by Wafula (2017), an investigation was undertaken in Trans Nzoia County to ascertain the impact of awareness on adoption of financial inclusion among small-scale farmers. The study population consisted of 384 agricultural practitioners who were selected in a random manner from various sub-counties within the Trans Nzoia region. The

intended target population consisted of agricultural practitioners engaged in a limited-scale farming operation within Trans Nzoia County. Data analysis involved the utilization of statistical methods encompassing both inferential and concise approaches. Graphs, frequency distributions, and proportions were utilized to present the data. The research findings indicate a strong and noteworthy association between savings habits, debt management, investment strategies, financial planning services, and the notion of financial inclusivity. Microfinance institutions and government organizations, according to the report, should coordinate financial literacy and education activities for small-scale farmers. Financial education should be included into the school curriculum beginning at the primary level, so that people are financially educated from a young age.

Njehia (2014) conducted a study to examine the level and impact of financial literacy on saving culture among employees of Mumias Sugar Company. To examine the association between the various factors, a descriptive survey architecture was used. According to the findings, the bulk of Mumias Sugar Company workers have extensive financial know-how and understanding. The regression findings revealed a clear correlation between financial awareness and employee personal financial planning at Mumias Sugar Company. According to the research, financial literacy services should focus on how to effectively tailor financial education programs to consumers.

Chepkemoi et al. (2017) examine the impact of financial literacy training on the corporate competitiveness of small and medium enterprises (SMEs) in Kwale County. The inquiry adopted the descriptive survey methodology targeting 16 SMEs that were beneficiaries of the World Bank facilitated trainings. Financial literacy training improved SME productivity and, as a result, profitability, according to the findings. The following factors were explored

in the study: experience in management of working capital, investments, bookkeeping, and functionality in terms of money, with output as the dependent variable. Statistical significance was found in each of the findings, with the exception of the negative association between bookkeeping and savings.

2.4 Summary of Literature Review and Research Gaps

Several relevant scholarly works have been reviewed from which the foundation of this study has been laid. The literature has offered valuable grounding on the relationship among the variables being studied as well as providing insights on the indicators for measuring the study variables. However, there exists a contextual, conceptual and methodological gap which this study sought to fill.

Table 2.1: Summary of Research Gaps

Author	Research topic	Major Findings	Knowledge Gaps	Focus of the current Study
Laha, Kuri and Kumar (2011)	An attempt was made to use a composite index of financial inclusion to quantify inter-state variances in access to finance.	The research discovered that variables such as comprehension of fundamental financial services, expansion of the agricultural sector in rural areas, educational initiatives targeting rural households, and a rise in familial resources are imperative for achieving financial inclusivity.	The research was carried out in a rural context in West Bengal, in contrast to the urban context. The demographic makeup of rural and urban areas exhibits distinct variations, including disparities in financial literacy.	The present investigation focused on the urban environment as the researcher posits that the degree of financial technology is greater in contrast to the rural setting. The urban environment predominantly consists of young individuals who relocate to seek employment opportunities and pursue advanced educational objectives, in contrast to rural regions that primarily consist of the elderly and the juvenile population.

Ngugi (2015)	Correlation between mobile banking and financial inclusion in Kenya for the period of between the year 2006 to 2014.	It was established that mobile financial transfer services have a positive effect on the promotion of financial inclusivity in Kenya.	This research was constrained to a singular facet of financial technology, specifically mobile banking, in the context of enhancing financial inclusivity. .	This research aimed to examine additional dimensions of financial technology, such as financial knowledge and online banking, in relation to the level of financial inclusion among the younger population in Kenya.
Karp and Nash-Stacey (2015)	Technology, opportunity and access: understanding financial inclusion in the United States of America	The findings established that the primary and indispensable factor that facilitates financial inclusion in metropolitan regions of the United States is	This research focused on comprehending financial inclusivity from the perspectives of technology, opportunity, and access in the United States of America, which	The present investigation aimed at examining the Kenyan context, which is an emerging market economy, with a particular emphasis on the younger population in relation to financial technology and the promotion of financial inclusivity.

		technology, specifically the availability of mobile devices, internet connectivity, and computer accessibility. Additionally, the utilization and accessibility of digital accounts play a crucial role in promoting financial inclusion..	is a highly developed market economy..	

Muathe (2017)	Effect of Financial Inclusion on Liquidity Risk of Commercial Banks in Kenya.	The results indicate that the presence of banks has an adverse impact on the level of risk associated with liquidity, whereas the ease of accessing banks has a favorable albeit modest influence. The utilization of banking services, nevertheless, had a notable favorable effect on the exposure to liquidity risk.	The examination was limited to the impact of financial inclusion on liquidity risk among the 43 commercial banks in Kenya, disregarding the consequences of financial inclusion for all providers of financial services by constraining its focus solely to the 43 economic banks.	The present study investigated the association between financial inclusiveness and financial technology, with a particular focus on the younger age group. The research examined the usage of mobile devices, the services rendered by organizations, the adoption of the internet, and the exchange of credit data as the explanatory factors, while taking into account financial inclusivity as the outcome variable. The research utilized primary and secondary data sources, as opposed to the use of panel data in a prior examination.

Musau, Muathe& Mwangi (2018).)	Financial inclusion on credit risk and the moderation effect of GDP on all the 43 commercial banks in Kenya for the period 2007-2015.	In the Kenyan context, the accessibility, utilization, and availability of banks exerted a notable impact on the credit risk faced by commercial banks. However, it was observed that the rate of economic growth, as measured by the GDP growth rate, played a moderating role in the association between	This research specifically examined the impact of financial inclusivity on the credit risk within the framework of commercial banking institutions.	This research examines the relationship between Financial Inclusion as both a dependent and independent construct. This research examines the impact of technology on the accessibility of financial services for young individuals in the central business district of Nairobi. It is separate from a previous investigation that focused on the potential for default on loans by commercial banks in Kenya, thus revealing a deficiency in the existing body of knowledge.

		financial inclusion and credit risk.		
Ndwiga (2020)	The nexus between market power and banking industry stability in the pre-FinTech era (2003-2009) and post-FinTech era (2010-2017).	There exists a positive association between the propensity of banks to engage in risk-taking activities and the expansion of their market influence subsequent to the entry of Fintech firms.	The research focused on the period prior to the emergence of Financial Technology (FinTech) from 2003 to 2009, as well as the period following the entrance of FinTech from 2010 to 2017. The research did not examine the aspect of economic inclusivity.	This research centered on the financial incorporation of young individuals, contrasting information between two technological epochs. The research was carried out via in-person interviews with the selected participants, and revealed a deficiency in understanding that is both situational and procedural.

(Source: Author, 2023)

2.5 Conceptual Framework

The conceptual framework put forth sought to examine the link between financial technology and financial inclusiveness in the context of Kenya, with a specific emphasis on the young operated businesses

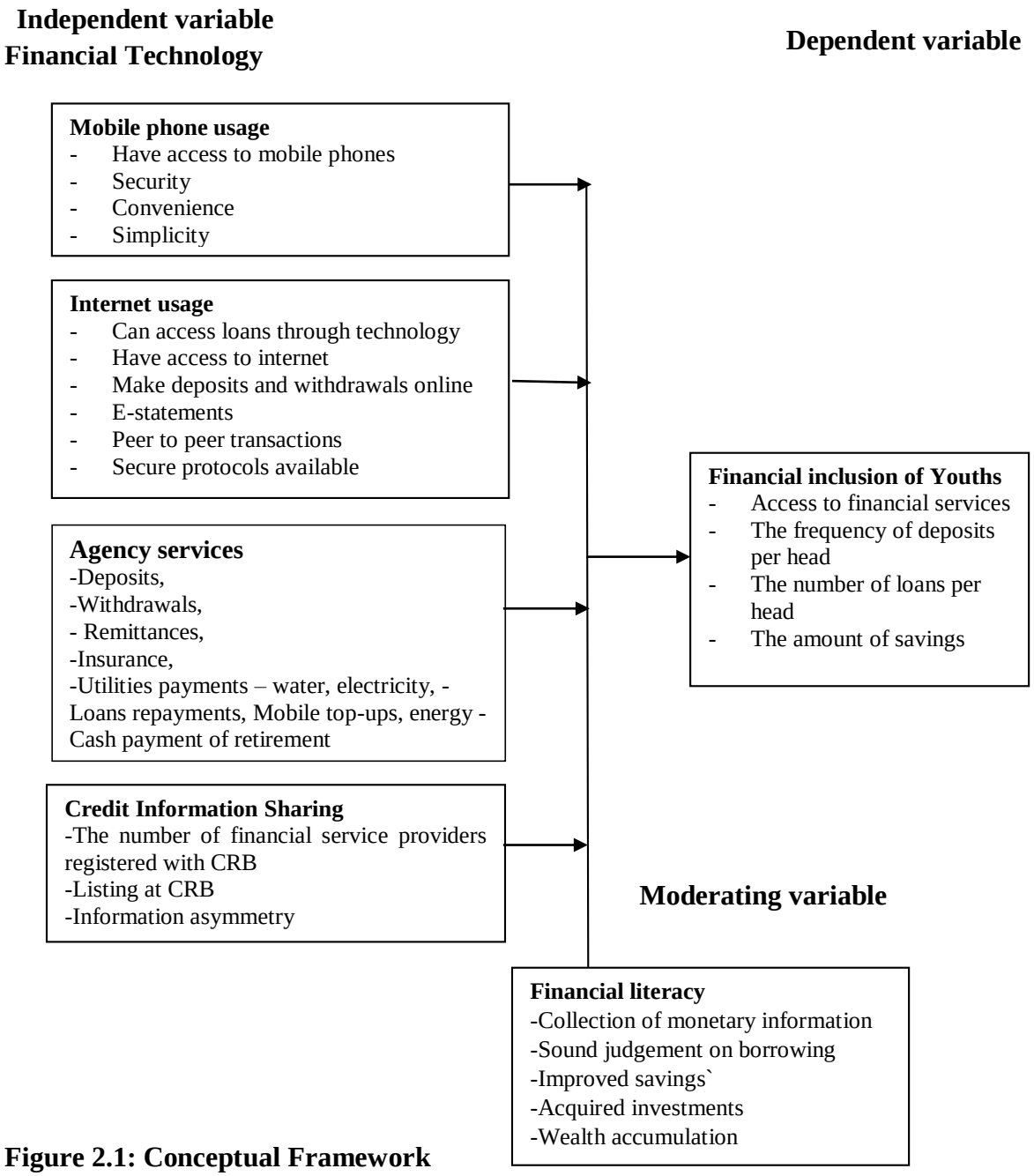


Figure 2.1: Conceptual Framework

Source: Author (2023)

Financial technology, broadly defined as the use of digital technologies in providing financial services, was identified as a key enabler of financial inclusion. The framework analyzed the role of financial technology sub variables such as mobile phone usage, internet usage, agency services, credit information sharing and financial literacy, in driving financial inclusion in Kenya, and explored the various channels and mechanisms through which financial technology can promote access to financial services.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on the research methodology that the investigator employed in the study. This encompasses the study's epistemological framework, research methodology, empirical framework, intended demographic, design of the sample and its magnitude, instruments for data collection, procedure for data collection, tools for diagnosis, assessment of validity and reliability, ethical considerations, as well as the analysis and presentation of data.

3.2 Research Philosophy

Research philosophy is the guiding principle for collecting, analysing and applying data about a phenomenon (Saunders et al., 2009). Positivism, pragmatism, realism and interpretivism are different perspectives of research philosophy. According to Lewis et al. (2013), the research philosophy of realism holds that research aims to grasp this reality in all its depth and complexity and that the external reality itself is diverse and multifaceted. Interpretivism states that the aim of the research is a whole range of experiences and opinions of participants, and great importance is placed on the clarity of connections between more abstract interpretations and the data provided by research participants. Pragmatism asserts that the quality of research practice has more to do with choosing the proper research tools than with methods limited to particular traditions. The positivism research philosophy is based on social reality, and the end product of that research can be generalizations similar to those created by physical and natural scientists. The study adopted positivism as a research strategy to collect data that can use existing theories to develop hypotheses.

3.3 Research Design

A study design considers research plans and procedures during data collection and analysis. Research design is the framework for achieving research objectives (Mugenda, 2010). Following Kothari (2004), a research design serves as the blueprint for data collection and analysis, establishing the parameters within which the study operates and harmonizing the pursuit of research objectives with the generation of tangible financial outcomes This study employed explanatory design frame, which according to McClintock, (2018), lack direct control over the predictor variable, making it inherently unalterable. The methodology enabled the investigator to ascertain the attributes, patterns, associations, and classifications, as descriptive inquiry aims to precisely and methodically delineate a population, circumstance, or phenomenon. Furthermore, none of the variables were controlled or manipulated by the researcher; instead, they were observed and measured.

3.4 Target Population

This is the collection of items from which inferences are drawn. It is simply the population of interest to the researcher, which is the group to which the study's conclusions should be extrapolated (Lutz, 2018). The study focused on youth operating businesses in Nairobi's that had been reregistered by the Nairobi City County. The licensing department records show that there were 105,800 enterprises with valid NCC trade licenses registered under ten clusters with various business codes in 2020. Out of these, 32100 licensed businesses were designated as youth owned and operated in several business areas such as general retail commerce, transportation, hairdressing, and fashion design (NCC, 2020). The target demographic included proprietors, managers and employees of youth businesses in various areas who were between the ages of 20 and 35. In the year 2020, information about youth-

owned and operated businesses was gathered from the Nairobi city county list of licensed youth enterprises.

3.5 Sampling Design and Sample Size

Sampling is the methodology of selecting a specific subset of a population to participate in a research investigation. It pertains to the mathematical process of choosing a subset of a population of interest in a research endeavour (Ogulah, 2005). As an illustration, members within a collective may possess diverse backgrounds, encounters, and viewpoints that can impact their conduct and reactions. Moreover, the procedure of categorizing a cluster of topics might fail to consider specific subcategories or marginalized communities within the broader category, resulting in an inadequate portrayal of the entire populace. Based on this, the researcher employed the Slovin's formulae, a sample size of 500 respondents was obtained. This formed the unit of observation. The Slovin's formulae was utilized as it permits a high degree of accuracy and helps to promote sample adequacy (Etikan, Musa & Alkassim 2016).

The Slovin's formulae is as stated below.

$$n = \frac{N}{1+Ne2}$$

Where; n = sample size N =Population e = Margin of error

3.6 Operationalization and Measurement of Variables

Operationalization refers to the procedure through which abstract notions are connected to measurable factors. This procedure entails discerning operations that will demonstrate the

values of a variable under investigation. Put simply, operationalization delineates tangible observations that are believed to empirically encapsulate a concept that exists in the tangible realm.

Table 3.1: Operationalization and Measurement of Variables

Variable	Type of Variable	Indicators	Measurement Scale	Statistics Analysis
Mobile phone usage	-Independent	- Have access to mobile phones - Security - Convenience - Simplicity	5-point Likert Scale	Descriptive Frequencies Regression
Internet usage	-Independent	- Can access loans through technology - Have access to internet - Make deposits and withdrawals online - E-statements - Peer to peer transactions - Secure protocols available	5-point Likert Scale	Descriptive Frequencies Regression
Agency services	-Independent	- Deposits, - Withdrawals, - remittances, - Insurance, - Utilities payments – water, electricity, - Loans repayments, - Mobile top-ups, energy - Cash payment of retirement and social benefits - ,Cash payment of salaries , - Transfer of funds ,	5-point Likert Scale	Descriptive Frequencies Regression

		- Balance Enquiries		
Credit Information Sharing	-Independent	- The number of financial service providers registered with CRB - Listing at CRB - Information asymmetry - Defaults	5-point Likert Scale	Descriptive Frequencies Regression
Financial inclusion	-Dependent	- Access to financial services - The frequency of deposits - The number of loans - The frequency of savings	5-point Likert Scale	Descriptive Frequencies Regression
Financial Literacy	Moderating Variable	- Collection of monetary information - Sound judgement on borrowing - Improved savings` - Acquired investments - Wealth accumulation	5-point Likert Scale	Descriptive Frequencies Regression

(Source: Author, 2023)

3.7 Data Collection Tools

Questionnaires with both closed ended and open ended were used to collect data.. This survey was beneficial in collecting qualitative and quantitative data, wherein respondents were provided with predetermined options to select from in the case of closed-ended questions. Each inquiry in the apparatus focused on a particular research aim.

3.8 Data Collection Procedure

The researcher first obtained a research authorization letter from Kenyatta University. This was followed by a research permit from NACOSTI. The researcher used drop and pick approach in collecting primary data by the help of trained research assistants.

3.8 Pilot Test

Ullah, Khan, Hakal, Khalid, and Hashmi (2023) provide a definition of a pilot test as a limited initial investigation employed to assess a proposed research study. This initial investigation centers on the research approach that will be utilized for data collection and the sampling strategies to be implemented, as preparations are made for the primary study. The credibility as well as dependability of research instruments are evaluated in order to attain this objective (Mugenda & Mugenda, 2003). The researcher selected a sample of 15 individuals in a random manner from Tulia market, which is in close proximity to Kabati market, in order to participate in the preliminary investigation.

3.8.1 Validity Test

Validity pertains to the degree to which the scores acquired from a particular assessment accurately measure the intended construct or concept (Cresswell & Path 2013). Before collecting data through questionnaire, five youths were piloted for the study to enable the researcher to establish whether the questionnaire to be used is the right instrument to capture all the questions sufficiently in accordance with the research objectives. This was achieved by examining whether the piloted questionnaires are free from ambiguity before preparing the final questionnaires. The pilot study was done in Nairobi Westlands area and was not part of the target group of respondents during data analysis.

3.8.2 Reliability Test

Reliability refers to the steadfastness of a collection of measurement items (Teater et al. 2016). This paper elucidates the extent to which a compilation of examination items can be utilized to assess a solitary underlying construct (Scott, 2019). Cronbach's Alpha (α) was employed as a metric of internal coherence, which was computed using the statistical analysis program SPSS version 23.0. A recommended value of 0.7 is suggested for the reliability assessment in the majority of research studies. This research employed a factor of 0.7 and the results are as shown below:

Table 3.3 Reliability Test Results

Variable	Cronbach's Alpha	Number of Questions	Conclusion
Mobile Phone Usage	0.850	8	Reliable
Internet Usage	0.845	8	Reliable
Agency Services	0.701	8	Reliable
Credit Information	0.874	8	Reliable
Financial Literacy	0.767	8	Reliable
Financial Inclusion	0.783	8	Reliable

Source: Study Data (2023)

Table 3.2 demonstrates that the Cronbach's Alpha level for each variable under examination was more than 0.70 hence the instrument used for data questionnaire was reliable. This was as per the threshold that Cronbach's Alpha (α) scores greater than 0.7 provides a satisfactory assessment of internal consistency of a data collection instrument

3.9 Data Analysis and Presentation

Data analysis, according to Cooper and Schindler (2017), refers to the procedure of giving order, structure, as well as meaning to a huge data amount. Data analysis on the other hand refers to the process of changing raw information into useable data that is typically issued as an analytical in attempt to optimize the statistical outcome (Khan, 2018). The data was organized and summarized using descriptive statistics. The mean, variance, standard deviation, as well as graphical representations were used to do this. In addition, inferential statistics including multiple linear regression model and correlation analysis (Gogtay &Thatte, 2017; Hauke & kossowaki, 2011). Tables as well as figures were used to present the results of the analysis. The research utilized STATA software version 25.

3.9.1 Empirical Model

The multiple regression equation presented in equation 3.1 was employed in data analysis

$Y= \beta_0 +\beta_1 MPU+ \beta_2 IU+ \beta_3 AS+ \beta_4 CIS+ \varepsilon i$ ………………………………………… (3.1)

Where:

Regression Parameters:

β_0-The intercept (value of $\sum Y$ when MPU, IU, AS and CIS = 0).

β_1, β_2 and β_3 are regression coefficients.

εi = Error term.

Independent Variables:

MPU – Mobile phone usage

IS – Internet Usage

AS – Agency Services

CIS – Credit Information Sharing

Dependent Variables:

Y- Financial inclusion

3.9.2 Moderating Effect Model

Model 3.1 was used as a base model because the moderator variable was not included. To assess the moderating effect of financial literacy on the connection between financial technology and financial inclusion among youth owned businesses in Nairobi CBD, a moderating variable was used. The current study adopted Baron and Kenny 1986 two-step model approach of determining moderating effect as advocated by (Abbu, 2017) as presented by the following equations:

$Y= \beta_0 +\beta_1 MPU+ \beta_2 IU+ \beta_3 AS+ \beta_4 CIS+ \boldsymbol{\beta_5 FL+} \varepsilon i$ …………………………………… (3.2)

Where:

β_0-The intercept (value of ∑Y when Mobile Phone Usage, Internet Usage, Agency Services and Credit Information Sharing = 0).

β_1, β_2, β_3, β_4 - regression coefficients

β_5 -is the coefficient **FL as an independent variable**

FL– Financial Literacy**.**

The next step was to estimate if financial literacy enhances or inhibits Financial Technology

$\mathbf{Y=\beta_0+\beta_1 MPU+\beta_2 IS+\beta_3 AS+\beta_4 CIS+\beta_5 FL+\beta_6 MPU*FL+\beta_7 IU*Fl+\beta_8 AS*Fl+\beta_9 CIS*Fl+}$ + εi …………………………………………………………………**(3.3)**

The model 3.3 was inclusive of the moderator. This is aimed at finding out the effect that the moderating variable has on the regression model.

Table 3.2 Moderation Decision Making Criteria

Analysis	Outcome	Criteria for Decision Making
Step one: Equation 3.2 Financial Literacy as Independent variables	Significant coefficient of financial literacy	Financial literacy is an explanatory variables
	Insignificant coefficient of financial literacy	Financial literacy can moderate the relationship between financial technology and financial inclusion among the youth in Nairobi County, Kenya
Step two: Equation 3.3 Financial Literacy Moderator variables	Significant coefficient of financial literacy	Financial literacy moderates the relationship
	Insignificant coefficient of financial literacy	Financial literacy does not moderate the relationship
	Significant coefficient of interaction terms Financial literacy*financial technology	Financial literacy moderators
	Insignificant coefficient of interaction Financial literacy *financial technology	Financial literacy is not moderators

Source: Researcher, 20222

3.10 Diagnostic Tests

To ensure adherence to assumptions of the regression model, the researcher carried out diagnostic tests to achieve the best linear unbiased estimator (BLUE). To achieve this, normalcy test, multicollinearity, linearity, and heteroscedasticity tests were applied (Krieger, 2018).

3.10.1 Linearity Test

The research examined the regression assumption of the linear nature of the association between the predictor and outcome variables. The coefficients demonstrate the magnitude and orientation of the association, wherein a positive value signifies a direct impact that results in an augmentation of the corresponding variable. Negative values demonstrate a reciprocal correlation (Field, 2009).

3.10.2 Homoscedasticity Test

The principle of homogeneity suggests that the random disturbance or error term in the relationship between the two categories of variables remains consistent regardless of the values displayed by the independent variable. In this regard, the Levene test was performed at 5% level to confirm to homogeneity of variance (Hair et al., 2006).

3.10.3 Multicollinearity Tests

The concept pertains to a situation in a multiple linear regression framework wherein one or more independent variables can be precisely forecasted in an orderly manner utilizing the remaining variables, signifying a considerable degree of accuracy. In order to assess the existence of multicollinearity, every individual variable was subjected to regression analysis with respect to the remaining variables in order to ascertain the Variance Inflation Factor (VIF), which was subsequently evaluated against a pre-established threshold value of 5. As the Variance Inflation Factor (VIF) rises, the probability of encountering multicollinearity also escalates, thereby requiring the removal of one independent variable. The presence of multicollinearity has the potential to impact the accuracy of the regression equation, nonetheless, a thorough assessment is necessary the removal of predictor variables.

3.10.4 Normality Test

The results of the normality test have implications for subsequent statistical analyses. Parametric tests, such as multiple regression or factor analysis (Hair, Black, Babin, Anderson, & Tatham, 2006), assume normality for all variables. Graphical analysis techniques, such as probability plots, are employed to assess the normal distribution. In this study, the normality assumption was examined using either the Kolmogorov-Smirnov or Shapiro-Wilk (SW) tests at a significance level of 0.05. The analysis involved the use of P-P plots, frequency distributions, and the Shapiro-Wilk test to assess the normality of the data.

3.10.5 Test for Autocorrelation

Wooldridge (2012) contends that autocorrelation exists where there is a random errors distribution that are both independent and identical. Because autocorrelation has a substantial impact on the validity of inferential analysis, it is crucial to choose appropriate statistical methods and increase the precision of the estimator (Wooldridge, 2012). In this study, the serial correlation was assessed using the Woodridge test for autocorrelation. Serial autocorrelation was highlighted by the null hypothesis, but the alternative would indicate otherwise.

3.11 Ethical Considerations

Prior to conducting research, the researchers considered the ethical implications of their research. All necessary measures were taken to ensure the privacy and confidentiality of the participants. The questionnaires obtained were obtained with the students' consent and all data gathered was treated with the utmost confidentiality. Furthermore, the research was approved by the Kenyatta University Board and the National Council for Science and

Technology in Kenya (NACOSTI), with a research permit granted for the purpose of gathering data. This ensured that the participants felt comfortable to provide the necessary information for the research without worry of it being shared.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.0 Introduction

This chapter provided a summary of the analysis of data collected by using data collection tool as stipulated in research methodology. The findings are captured to indicate the significance of the relationship between financial technology and financial inclusion of youth operated businesses in Nairobi. The results are presented in form of correlation analysis, descriptive statistics and inferential statistics. The findings are compared to the results of other studies and the key findings of this study are also indicated.

4.1 Response Rate

In this study, 500 questionnaires were issued to youths operated businesses in Nairobi County who were given 7 days to fill in the requisite information. The method employed was drop and pick. Data was collected within three months between the months of October to December 2022. The findings indicated that a total of 395 surveys were effectively completed and submitted within the three months, thereby implying a response rate of 79%.

As per Werner (2004), an 80% or higher rate of response is deemed satisfactory for drawing precise inferences from samples. Based on this benchmark, the questionnaire return rate of 79% is above the minimum threshold for guaranteeing accuracy of results and conclusions.

4.2 Demographic Analysis

The sought to establish the connection of associating financial technology, financial literacy and financial inclusion among the youth owned businesses in Nairobi's Central Business District. In response, the background information such as gender, experience with

mobile-based financial services, and level of education was collected from the respondents. Table 4.1 was used to present the results.

Table 4.1: Demographic Profiles

		Freq. (N=395)	%
Gender	Female	246	62.2
	Male	149	37.8
Experience with mobile financial services	1 to 2 years	38	9.6
	3 to 5 years	138	34.9
	Above 5 years	219	55.5
Level of education	Primary education	32	8.10
	O level	24	6.09
	College- Certificate & Diploma	155	39.24
	University undergraduate	108	27.34
	University Postgraduate	76	19.24
Active Online Customer platform	Yes	395	100

Source: Study data (2023)

From the table, it was established that out of the total 395 participants, 246 were female (62.2%) and 149 were male (37.8%). Hence concluding that more women were using mobile financial services among the youth operated businesses in Nairobi City County. This indicates that there is a need to improve access to financial technology and credit

information sharing among male youth in the region, in order to promote financial inclusion and gender balance.

With respect to the degree of engagement with financial services, 9.6% of participants possessed a span of 1 to 2 years of familiarity with mobile financial services, while 34.9% had a duration of 3 to 5 years of familiarity. Additionally, a majority of 55.5% had an experience exceeding 5 years, thereby suggesting a diverse spectrum of familiarity with mobile financial services among the younger population in the central business district of Nairobi. In addition, the analysis shows a wide range of knowledge and experience with mobile financial services among the youth in the region, which could have implications for financial inclusion. It also suggests that there is a need to increase access to financial technology and credit information sharing among the youth in the region, in order to promote financial inclusion given over half of the population seem to be new entrants into the CBD businesses.

Further, the results show that there is a wide range of educational attainment among the youth in Nairobi County. 8.10% had primary education, 6.09% had O level, 39.24% had college certificate or diploma, 27.34% had university undergraduate, and 19.24% had university postgraduate. This indicates that there may be a need to increase access to financial technology and credit information sharing among youth with lower levels of education, in order to promote financial inclusion. Further, the findings also show that the respondents had access to an active online customer platform. This indicates that there is a high level of access to financial technology among the youth which could create opportunities for financial inclusion.

The results support that OECD (2019) study which realized that the adoption of increasingly complex financial services such as mobile payments and banking is influenced by an individual's gender, wealth and literacy, in addition to the service rates and transaction volume.

As a consequence, the development of new products should be mindful of the diverse gender needs of the youths in informal enterprises to further enhance financial inclusion. Furthermore, the financial institutions should develop strategies that target the youths in theto enhance their access to financial products and services. Moreover, financial institutions should also ensure that the products they offer are gender-sensitive, and provide competitive rates that are tailored to the needs of the different profiles in terms of experience and levels of education.

4.2.1 Types of Mobile-Based Products and Services Accessed

The research aimed to examine the categorization of internet-based services and commodities utilized by young individuals in order to gain understanding of the utilization of financial technology among this specific population. Moreover, this would additionally ascertain which financial technology services and products are highly favored.

Table 4.2: Online Products and Services

Types of Online Products and Services	**Yes**		No	
Mobile lending,	395	100.00%	0	0.00%
Mobile banking	200	50.63%	195	49.37%
Fundraising applications	228	57.80%	167	42.20%
Mobile payment	395	100.00%	0	0.00%
Peer-to-peer lending applications	34	8.70%	361	91.30%

Business-to-business lending	181	45.90%	214	54.10%
Insurtech	201	51.10%	194	48.90%
Digital payment,	198	50.30%	197	49.70%
Online trade	363	91.90%	32	8.10%
International money transfer	110	28.10%	285	71.90%
Online foreign exchange	115	29.30%	280	70.70%
Online procurement	88	22.40%	307	77.60%
Online betting	356	90.30%	39	9.70%

Source: Study data (2022)

The results show that mobile lending and mobile payment are the most popular online products and services, with 100% and 50.5% of respondents reporting that they use them respectively. In contrast, peer-to-peer loan platforms and business-to-business lending exhibit the lowest levels of popularity, as indicated by a mere 8.7% and 45.9% of participants utilizing these respective services. Additional internet-based products and services that have garnered significant popularity among survey participants encompass crowdfunding platforms (57.8%), insurance technology (51.1%), electronic payment systems (50.3%), e-commerce (91.9%), cross-border remittance solutions (28.1%), web-based currency exchange platforms (29.3%), virtual procurement platforms (22.4%), and online gambling (90.3%). The data indicates that the younger population in the central business districts of Nairobi are utilizing a diverse range of financial technology services. However, certain services, such as peer-to-peer lending applications and business-to-business lending, are experiencing comparatively lower levels of usage. This is suggestive of an augmented financial inclusivity among this particular demographic, as it is more

convenient for them to avail themselves of digital financial services and products that can assist them in efficiently overseeing their monetary matters. Moreover, the increased use of mobile lending and mobile payment services implies that the youth are more likely to use credit information sharing systems, allowing them to build a credit history and access credit more easily.

4.3 Descriptive Statistics

Descriptive statistics enable a researcher to quantify and elucidate the fundamental attributes of a dataset. Consequently, descriptive statistics function as an initial stage for the analysis of data, enabling researchers to arrange, streamline, and condense data (Onnela 2021).The average, variability, asymmetry, and peakedness of the financial technology, credit information sharing, and financial inclusion of the youth are presented in the table provided. It is imperative to acknowledge that the unprocessed variable items are evaluated on a continuum ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Consequently, a mean value below 2.5 is construed as indicative of a dissenting viewpoint regarding the frequency of the variable. Conversely, a mean value above 3.5 is seen as an indication that the variable is often observed or practiced. Values between 2.5 and 3.5 are considered to be moderate. Skewness and kurtosis together can ascertain the extent to which the variable follows a normal distribution; if the absolute values of both are less than one, then the variable is in line with a normal distribution.

Table 4.3: Descriptive Statistics

	N	Mean	Std. Dev.	Skewness	Kurtosis
Mobile phone usage	395	3.6663	.67760	-1.252	2.299
Internet usage	395	3.8882	.83122	-.889	.717
Agency services	395	4.2677	.80355	-1.469	2.313
Financial literacy	395	3.8250	.58511	-.930	.783
Credit information sharing	395	4.0222	.79152	-.969	.932
Financial inclusion	395	3.8538	.58489	-.836	.271

Source: Study data (2022)

The sub variables of financial technology comprised of five variables including mobile phone usage, internet usage, agency services, credit information sharing and financial literary. The mean of the five variables range from 3.67 (SD=.677) to 4.26 (SD=0.803) indicating they were moderately observed by the studied youths operated businesses in the Nairobi County. In particular, the analysis on the variable of phone usage in utilizing of financial technology, noted that access of financial technologies via the phone was relatively widespread across the population (mean= 3.6663; SD =0.67760). The skewness score of -1.252 indicates that the data is slightly left-skewed, meaning that there are more data points on the right side of the mean than on the left. The kurtosis score of 2.299 indicates that the data is moderately peaked, meaning that most of the values are close to the mean. The slight left-skew of the data indicates that there may be some population segments that are underserved. This could be due to a variety of factors, such as income level, age, or education. As such, improving financial inclusion for these underserved populations is an important step towards improving economic wellbeing. The findings

support the study conducted by George (2012) which observed that the utilization of mobile phones facilitated the usage of three distinct categories of financial services, specifically: mobile money transfers, mobile transactions, and mobile banking. As such mobile phone usage was a key determinant for the youth's financial inclusion owing to convenience in accessing the financial services of mobile payments and banking.

The results of this analysis on internet usage produced a mean of 3.8882 and a standard deviation of .83122, which suggest that, overall, the youth have access to infrastructure and technology that is fairly average, with a few outliers. This is a positive sign for financial inclusion, as it means that even in the least developed pockets of Nairobi county, there is access to the technology and infrastructure including internet access needed to facilitate financial transactions. However, the skewness score of -.889 indicates that the data is slightly left-skewed, meaning that there are more data points on the right side of the mean than on the left. The kurtosis score of .717 indicates that the data is slightly peaked, meaning that most of the values are close to the mean. The slight left-skew in the data indicates that there are still some youth-led businesses in the CBD that are lagging behind in terms of access to internt. This could have significant implications for financial inclusion, as access to these resources is essential for successful financial inclusion initiatives.

Regarding agency services, the mean was 4.2677 while the standard deviation was 0.80355. The skewness score was -1.469 indicates whereas the kurtosis score of 2.313. The results indicate that financial service providers have a moderate amount of skewness and kurtosis. This is likely due to the fact that there are not a large number of financial service providers in Nairobi county, and thus the data points will be clustered around the mean.

This could have implications for financial inclusion, as it indicates that access to financial services may be limited in certain areas. Additionally, the moderate skewness and kurtosis scores suggest that there may be disparities in the distribution of financial services, with some areas having better access than others. This could create an unequal financial landscape and lead to disparities in financial inclusion.

The findings regarding the independent variable of credit information sharing suggest that the average value is 4.0222, while the measure of variability is represented by a standard deviation of .79152. The skewness score of -.969 indicates that the data is slightly left-skewed, meaning that there are more data points on the right side of the mean than on the left. The kurtosis score of .932 indicates that the data is slightly peaked, meaning that most of the values are close to the mean. The analysis suggests that most of the credit information shared is clustered around the mean rather than having a wide range of values. This could potentially be a positive for financial inclusion, as it indicates that the young person's engaging in businesses in Nairobi county have a more consistent view of creditworthiness among borrowers. This could lead to a more even distribution of credit among borrowers, making it more accessible to those who may have lacked access in the past. Additionally, it could also reduce the risk of lenders since they will have more consistent information on which to base their decisions. Ultimately, this could lead to more financial inclusion, as more people are able to access credit and build their credit histories.

The descriptive findings regarding the reliant variable of financial inclusion reveal an average of 3.8538 and a deviation from the mean of .58489. The negative skewness coefficient of -.836 signifies that the data is slightly left-skewed, while the kurtosis score of .271, which indicates that the data is slightly flat, meaning that most of the values are

far from the mean. The analysis imply that the financial inclusion rate is not as high as we would like, but there are still some areas where financial inclusion is present.

The examination of the subordinate component of financial literacy unveiled an average of 3.8250 and a deviation of .58511. The skewness coefficient of -.930 suggested a minor negative skew, implying that there were a greater number of observations on the higher end of the distribution compared to the lower end. The kurtosis coefficient of .783 denoted a minor prominence, implying that the majority of the observations were concentrated in close proximity to the average. The examination implies that the level of financial literacy and understanding is comparatively elevated among the surveyed populace, signifying the effectiveness of financial inclusion tactics and the availability of necessary resources for individuals to make prudent financial choices. It additionally implies that individuals possess the ability to comprehend and utilize financial products and services, a pivotal element for attaining financial inclusivity. Nonetheless, the data exhibiting a minor leftward skewness and a minor peakedness suggests that the arithmetic average may not precisely depict the overall financial literacy and knowledge proficiency of the entire populace. This implies the existence of individuals who exhibit diminished levels of financial literacy and knowledge, potentially resulting in inferior financial inclusivity. In order to tackle these concerns, it is imperative to provide assistance to specific financial education and literacy initiatives aimed at individuals with limited financial literacy and expertise, with the aim of enhancing financial inclusivity.

4.4 Inferential Analysis

Inferential statistics helps to suggest explanations for a situation or phenomenon. It allows you to draw conclusions based on extrapolations (Kar 2021).

4.4.1 Correlation Analysis

Correlation facilitates the quantification of the degree of association. The correlation coefficient aids in quantifying the degree of association between two or more variables. The magnitude and scope of the association between two variables is, undoubtedly, one of the paramount concerns in the field of statistics. A correlation coefficient of 1 signifies an ideal positive correlation (i.e., as one variable escalates, the other also exhibits an increase). A correlation coefficient of -1 signifies an ideal inverse correlation (i.e., as one variable ascends, the other descends). A correlation coefficient of zero signifies the absence of any correlation between the two variables.

Table 4.4 presents the Spearman's rho correlation coefficient among diverse variables associated with financial inclusion.

Table 4.4: Correlation Analysis

Correlations							
		Mobile phone usage	Internet usage	Agency services	Credit information sharing	Financial literacy	Financial inclusion
Spearman's rho	Mobile phone usage	1.000					
	Internet usage	.080	1.000				
	Agency services	.102*	.437**	1.000			
	Credit information sharing	.033	.686**	.673**	1.000		
	Financial literacy	.397**	.593**	.388**	.433**	1.000	
	Financial inclusion	.325**	.665**	.500**	.593**	.651**	1.000
*. Correlation is significant at the 0.05 level (2-tailed).							
**. Correlation is significant at the 0.01 level (2-tailed).							

Source: Study data (2022)

The results show that there is a positive correlation between mobile phone usage and internet usage (rho = .080), agency services and credit information sharing (rho = .673), and financial literacy and financial inclusion (rho = .651). There is also a moderate correlation between internet usage and credit information sharing (rho = .686) and internet usage and financial inclusion (rho = .665). However, the correlation between mobile phone usage and credit information sharing (rho = .033) and mobile phone usage and financial inclusion (rho = .325) is relatively weak. In addition, the many of the correlation between the variables are significant at 95% and 99% CI (demoted by * and ** respectively), except

for mobile phone usage versus internet usage and mobile phone usage and credit information sharing which are not statistically significant at either confidence level. The results imply that, while there is some relationship between these two variables, it is not strong enough to be considered statistically significant.

4.4.2 Diagnostic Tests Results

The diagnostic examinations were conducted to explore whether the computed framework and the suppositions formulated regarding the data and the framework were congruous with the documented data. Consequently, assessments for normalcy and multicollinearity were conducted, and the findings are displayed subsequently.

4.4.2.1 Normality Test

The outcomes of the normality tests is presented in table 4.5.

Table 4.5: Normality Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Financial technology factors	.092	395	.000	.942	395	.000

Source: Study data (2021)

The outcomes of both Kolmogorov-Smirnov test and the Shapiro-Wilk test examinations suggest that the financial technology variables do not follow a normal distribution, as the significance values are both below 0.05. This suggests that the data deviates substantially from a Gaussian distribution. Due to the departure from normality in the data, the research employed a nonlinear framework in which the response variable was subjected to a natural logarithm transformation, and subsequently, estimation was carried out.

In addition, the normal distribution curve was generated to determine if the data is symmetrical and check for skewness and kurtosis in the distribution.

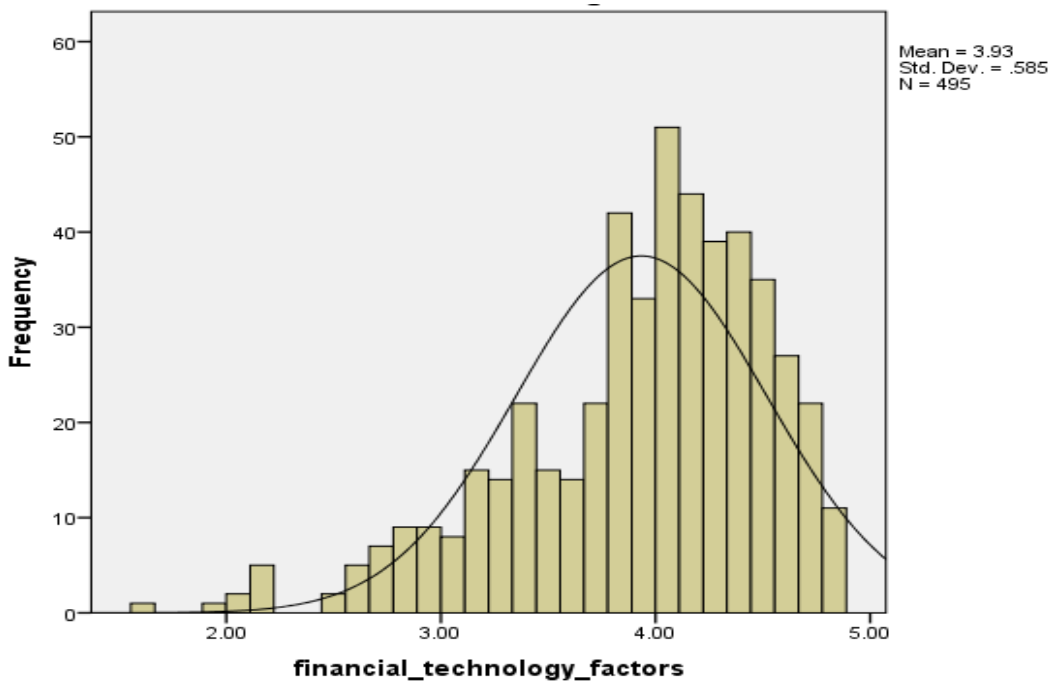


Figure 4.1: Normal Distribution Curve

The graph suggest that the data is skewed to the right, and that there are more values on the right side of the mean than on the left side, indicating skewness. The result further confirmed the data failed the normality test and therefore a natural log transformation of the dependent variable was warranted.

4.4.2.2 Multicollinearity Test

The collinearity diagnostics was performed to identify possible inter-correlations between independent variables, with significant effects on the accuracy of regression model in explaining financial inclusion. A key goal of regression analysis is to isolate the relationship between each independent variable and the dependent variable and therefore highly correlated variables will likely misrepresent a unit change in the related variables.

The variance inflation factor (VIF) was used to identify correlation between independent variables under the financial technology factors and the strength of that correlation.

Table 4.6: Multi-collinearity Tests

	Collinearity Statistics	
Variable	**Tolerance**	**VIF**
Mobile phone use	.600	1.665
Internet technology	.274	3.656
Agency service providers	.511	1.958
Financial literacy	.339	2.950
Credit Information Sharing	.255	3.919

Source: Study Data (2022)

In view of this, the analysis revealed no signs of collinearity among the independent variables as none of the VIF values was greater than 5.

4.4.2.3 Tests for Heteroscedasticity

The examination employed for identifying heteroscedasticity was the Breusch Pagan test as displayed below.

Table 4.7: Table Breusch-Pagan / Cook-Weisberg test for Heteroskedasticity

Variables: Financial technology	
chi2(1)	1129.83
Prob > chi2	0.0000
Ho: Constant variance	

Source: Study Data (2022)

The calculated test statistic is 1129.83, while the probability value is recorded as 0.0000. This suggests that the null hypothesis (assumption of constant variance) can be refuted. This suggests that the variability of the financial technology dataset is not consistent and that there is substantial evidence of heteroscedasticity.

Given the inherent ambiguity in estimating the model without a constant variance, the research employed robust standard errors as a means to rectify this issue.

4.4.2.4 Tests for Autocorrelation

In this study, the serial correlation was assessed using the Woodridge test for autocorrelation. Serial autocorrelation was highlighted by the null hypothesis, but the alternative would indicate otherwise.

Table 4.8 : Correlation Tests Results

Serial Correlation Tests
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1,12) = 0.222
Prob > F = 0.8836

Source: Research data 2022

From the results, the F statistic had a value of 0.8836 and a P value of 0.222. Since the P value was greater than 5% level of significance then, the F test was statistically insignificant and therefore the study failed to reject the null hypothesis and concluded that there was no problem of serial correlation covariance (Brooks, 2008).

4.4.3 Regression Analysis

4.4.3.1 Regression Weights for Overall Model

The outcomes of the model synopsis are displayed in table 4.8.

Table 4.8 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.793[a]	.629	.606	.406

a. Predictors: (Constant), credit sharing, mobile phone usage, agency services, internet usage

b. Predictors: (Constant), credit sharing, mobile phone usage, agency services, internet usage, financial literacy

Source: Study Data (2022)

The correlation coefficient, denoted as R Square, is 0.629 with an adjusted R Square of 60.6%.These values suggest a robust association between the predictor and response variables in both models. This means that financial technology explains financial inclusion among youth operated businesses in Nairobi by 60.6%. The remaining 39.4% can be attributed to other factor not under study.

4.4.3.2 Analysis of Variance

The F-test was used by the researcher to check for statistical significance in the total regression model. The statistical importance of the equations was determined by applying

a regression analysis at the 5% level and comparing the alpha value to the p-value. table 4.8 summarizes the important test results.

Table 4.8: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	137.041	4	34.260	208.013	.000[b]
Residual	80.704	490	.165		
Total	217.745	494			

Source: Study data (2022)

a. Dependent Variable: financial inclusion

b. Predictors: (Constant), credit sharing information, mobile phone usage, agency services, internet usage

The ANOVA results shows the model was significant and therefore can be used to predict the outcome.

4.4.3.3 Hypothesis Testing

The study aimed to establish the effect of Financial Technology on Financial Inclusion among the youth in Kenya. In order to answer the objectives, the corresponding hypotheses were tested using the Beta coefficients and the P values in the estimated multiple regression model at a confidence level of 95% (p-value = 0.05), and the findings were provided in table 4.9.

Table 4.9: Regression Coefficient

Financial Technology	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.291075	0.071407	4.076271	0.00
Mobile Phone Usage	0.391924	0.071408	5.488538	0.00
Internet Usage	0.062056	0.049192	1.261514	0.208066
Agency Services	0.31773	0.055498	0.572500	0.567396
Credit Information Sharing	0.205938	0.068992	2.984963	0.003060
Observations: 495				
F statistics= 14.368541				
R Squared = 0.155557				
Significance F=0.00[b]				

Source: Study data (2022)

Analysis of Table 4.9 led to formulation of the following regression Model:

FinancialInclusion=0.291075+0.391924MPU+0.062056IU+0.031773AU+

0.205938CIS+ εi

Where:

MPU – Mobile phone usage

IS – Internet Usage

AS – Agency Services

CIS – Credit Information Sharing

0.291075 =Y-intercept or constant term

0.391924 = an estimate of the expected increase in financial inclusion corresponding to increase in mobile phone sage.

0.062056 = an estimate of the expected increase in financial inclusion corresponding increase in internet usage.

0.031773 = an estimate of the expected increase in financial inclusion corresponding to an increase agency services.

0.205938 = an estimate of the expected increase in financial risk corresponding to an increase in credit information sharing

ε = error term

H_{01}: Mobile phone usage has no significant effect on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya.

The first objective of the study sought to establish the effect of mobile phone usage on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya and the findings are as shown in Table 4.9. To achieve this objective a null hypothesis, **$H0_1$** above was formulated. In Table 4.9 the coefficient of mobile phone usage (β=0.391924, p=0.000<0.05) shows a positive statistically significant relationship between mobile phone usage and financial inclusion. Therefore, the null hypothesis that Mobile phone usage has no significant effect on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya was

rejected at five per cent level of significance. The results in line with the findings of Asonguh, (2015) which stated that allowing access to formal financial services decreasing the information asymmetry through the dissemination of information thus lowering income disparities. As a consequence, mobile phone use is likely to expand access of financial technology and potentially enhance financial inclusion (Andrianaivoh & Kpodar, 2012; Anarfo*et al.,* 2019).

H_{02}: Internet usage has no significant effect on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya.

The second objective of the study sought to establish the effect of internet usage on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya and the findings are as shown in Table 4.9. To achieve this objective a null hypothesis, **$H0_2$** above was formulated. In Table 4.9 the coefficient of internet usage (β=0.062056, p=0.000<0.05) shows a positive statistically significant relationship between internet usage and financial inclusion. Therefore, the null hypothesis that internet usage has no significant effect on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya was rejected at five per cent level of significance. Similar findings by Salahuddineh & Gowh, (2016); Chen *et.al,* (2018) also realized that internet use promotes financial inclusion and financial depth. Bongomine *et al.,* (2018) and Chinodah & Kwendah, (2019) also support the findings given they noted the increased usage of mobile phones and the Internet were beneficial instruments for encouraging financial inclusion as well as for the growth of the financial

sector by lowering the cost of financial services and making financial organizations' operations more efficient and flexible.

H_{03}: Agency services have no significant effect on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya.

The third objective of the study sought to establish the effect of agency services on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya and the findings are as shown in Table 4.9. To achieve this objective a null hypothesis, **$H0_3$** above was formulated. In Table 4.9 the coefficient of agency services (β=0.031773, p=0.000<0.05) shows a positive statistically significant relationship between agency services and financial inclusion. Therefore, the null hypothesis that agency services has no significant effect on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya was rejected at five per cent level of significance

The results agree with the findings of Barrett &Michael (2010) which noted that agency services provided several benefits to both the bank and the agent, including increased savings mobilization, increased public awareness and output on commercial banks' perspective, and commissions for agents. In addition, Ivatury and Mass (2008) noted that agency banking has sparked a lot of interest because of its possibility to provide financial services to a large number of people near the foot of the pyramid.

H_{04}: Credit Information Sharing has no significant effect on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya.

The fourth objective of the study sought to establish the effect of credit information sharing on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya and the findings are as shown in Table 4.9. To achieve this objective a null hypothesis, **$H0_4$** above was formulated. In Table 4.9 the coefficient of credit information sharing (β=0.205938, p=0.096>0.05) shows a positive statistically insignificant relationship between credit information sharing and financial inclusion. Therefore, the null hypothesis that credit information sharing has no significant effect on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya was accepted at five per cent level of significance. The analysis revealed that credit information sharing did not affect the youth level of financial inclusion.

4.7 Moderating Effect of Financial literacy on the Effect of Financial Technology on Financial Inclusion.

The null hypothesis to investigate the moderation effect of financial literacy on the relationship between financial technology and financial inclusion among youth operating businesses at the Nairobi CBD was also tested. This was done as per Haye's model 1 of determining moderating effect as advocated by (Abbu, 2017). The null hypothesis thereof stated as follows:

H_{05}: Financial literacy has no moderating effect on the relationship between financial technology and financial inclusion among youth operating businesses in Nairobi CBD.

First, to test for **H_{05}**, moderating variable was introduced to equation 3.0 to get the model

below and results are stipulated on table 4.10

$Y= \beta_0 +\beta_1 MPU+ \beta_2 IU+ \beta_3 AS+ \beta_4 CIS+ \boldsymbol{\beta_5 FL+} \varepsilon i$ …… (3.1)

Where:

MPU – Mobile phone usage

IS – Internet Usage

AS – Agency Services

CIS – Credit Information Sharing

Fl is Financial Literacy

Table 4.10: Regression Results after Introducing Financial Literacy as an Explanatory Variable

Financial Technology	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.291075	0.071407	4.076271	0.00
Mobile Phone Usage	0.391924	0.071408	5.488538	0.00
Internet Usage	0.062056	0.049192	1.261514	0.208066
Agency Services	0.31773	0.055498	0.572500	0.567396
Credit Information Sharing	0.205938	0.068992	2.984963	0.003060
Financial Literacy	0.02305	0.00381	6.049868	0.003010
Observations: 495				
F statistics= 14.368541				
R Squared = 0.155557				
Significance F=0.00[b]				

Source: Study data (2022)

Analysis of Table 4.10 led to formulation of the following regression Model:

Financial Inclusion=0.291075+0.391924MPU+0. 062056IU+0.031773AU+ 0.205938CIS+ 0.02305FL+ εi

This suggests that there was a positive association between financial inclusion and financial

literacy. The P-value coefficient of financial literacy was 0.003010 as a result, less than the significance level of 0.05. This concluded that β_5 was significant.

Secondly, financial literacy being a moderating variable was tested as per equation 3.3 as shown below and the results were as shown on table 4.11..

$$Y=\beta_0+\beta_1 MPU+\beta_2 IS+\beta_3 AS+\beta_4 CIS+\beta_5 FL+\beta_6 MPU*FL+\beta_7 IU*Fl+\beta_8 AS*Fl+\beta_9 CIS*Fl+ +\varepsilon i \quad \textbf{(3.3)}$$

Table 4.11: Regression results after Introducing Financial Literacy as a Moderating variable

Financial Technology	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.011703	0.052478	-0.223007	0.823678
Mobile Phone Usage	0.316683	0.056621	5.593023	0.00
Internet Usage	0.056198	0.055265	1.016876	0.310008
Agency Services	0.037180	0.057108	0.651058	0.515493
Credit Information Sharing	0.171506	0.053304	3.217535	0.001430
Mobile P phone Usage*FL	0.023358	0.056789	0.411313	0.681128
Internet Usage*FL	0.111818	0.060787	1.839507	0.066800
Agency Services*FL	-0.011703	0.063327	-0.184802	0.333061

Credit Information sharing*FL	0.023358	0.056789	4.11312	0.681128

Observations: 495

F statistics= 8.812822

R Squared = 0.166419

Significance F=0.00[b]

Source: Study data (2022)

Results stipulated on table 4.11 above shows that values for **β_6, β_7 β_8, and β_9** were 0.023358, 0.111818, -0.011703 and 0.023358 respectively and P-values were 0.681128 for **β_6**, 0.066800 for **β_7** 0.333061 for **β_8** and 0.681128 for **β_9** which were above significance level of 0.05 hence they were all insignificance. The study concluded that financial literacy has no moderating effect on the relationship between Financial Technology and financial inclusion among youth operating businesses in Nairobi CBD hence **H_{05}** was not rejected. The study by (Sindani, 2019) concluded that financial literacy had a significant positive moderating effect on the relationship between account receivable management practices and SMEs growth in Kenya. The current study is on the contrary to (Sindani, 2019) findings. The analysis supports the findings of Chepkemoi et al. (2017) which stated that financial literacy training improved SME productivity and, as a result, profitability. Further, Wafula (2017) also realized that savings habits, debt management, investing habits, financial planning services, and financial inclusion were all shown to have a favorable and meaningful association with financial literacy.

Table 4.12: Summary of Research Hypotheses

Hypotheses	P-value	Decision
H_{01}: Mobile phone usage has no significant effect on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya.	(β_1=0.237, p=0.096>0.05)	Reject **H_{01}**
H_{02}: Internet usage has no significant effect on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya.	(β_2=0.414, p=0.000<0.05)	Reject **H_{02}**
H_{03}: Agency services have no significant effect on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya.	(β_3=0256, p=0.000<0.05)	Reject **H_{03}**
H_{04}: Credit Information Sharing has no significant effect on financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya.	(β_4=0.080, p=0.096>0.05)	Failed to reject **H_{04}**

H_{05}: There is no moderating effect of financial literacy on the relationship between Financial Technology and financial inclusion among the youth operating businesses in central business district, Nairobi County, Kenya.	(β_5=0.02305, p=0.00310<0.05) (β_6=0.023358, p=0.681128>0.05) B_7=0.111818, p=0.066800>0.05) β_8=-0.011703, p=0.333061>0.05) β_9=0.23358, p=0.681128>0.05)	Failed to reject **H_{05}**

Source: Study data (2022)

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This is the final chapter of the research project. Subsequently, in consideration of the established correlation between the identified factors and the financial inclusion of the youth operating businesses in Nairobi's central business district, deductions are made. To close the gap, later policy ideas and other research fields are provided.

5.2 Summary

The main objective of this research was to examine how financial technology affected the level of financial inclusion among the youth operating businesses in Nairobi CBD. The study sought to determine the effect of mobile phone usage, internet usage, agency services, and credit information sharing and moderation effect of financial literacy. The study focused on youth operating businesses in Nairobi's CBD that had been reregistered by the Nairobi City County. The licensing department records show that there were 105,800 enterprises with valid NCC trade licenses registered under ten clusters with various business codes in 2020. Out of which 500 were conveniently selected to form the respondents of this research.

The first specific objective was to establish the effect of mobile phone usage on financial inclusion among youth operating businesses in Nairobi CBD, Kenya. Data was analyzed and the correlation results indicated that mobile phone usage was positively as well as hving statistically significant correlation with the financial inclusion among the youth. Furthermore, the results of multiple regression analysis indicated that mobile phone usage had a positive and significant linear relationship with financial inclusion and hence any

change in mobile phone usage will lead to a significant positive change in financial inclusion. Hence, the null hypothesis that mobile phone usage has no effect on financial inclusion among youth operating businesses in Nairobi CBD, Kenya was thus rejected.

Secondly the study sought to determine effect of internet usage on financial inclusion among youth operating businesses in Nairobi CBD, Kenya. Data was analyzed and the correlation results indicated that internet usage had a positive and statistically significant correlation with the financial inclusion among the youth. Furthermore, the results of multiple regression analysis indicated that internet usage had a positive and significant linear relationship with financial inclusion and hence any change in internet usage will lead to a significant positive change in financial inclusion. . Hence, the null hypothesis that internet usage has no effect on financial inclusion among youth operating businesses in Nairobi CBD, Kenya was thus rejected.

Thirdly the study sought to find out the effect of agency services on financial inclusion among youth operating businesses in Nairobi CBD, Kenya. Data was analyzed and the correlation results indicated that agency had a positive and statistically significant correlation with the financial inclusion among the youth. Furthermore, the results of the estimation model showed that agency was positively as well as significant influenced the financial inclusion and hence any change in internet usage will lead to a significant positive change in financial inclusion. Hence, the null hypothesis that agency has no effect on financial inclusion among youth operating businesses in Nairobi CBD, Kenya was thus rejected.

Fourthly the study sought to investigate how credit information sharing associated financial inclusion among youth operating businesses in Nairobi CBD, Kenya. Data was analyzed

and the correlation analysis established that credit information sharing had a positive and statistically insignificant correlation with the financial inclusion among the youth. Furthermore, the results of multiple regression analysis indicated that credit information sharing had a positive and insignificant linear relationship with financial inclusion and hence any change in credit information sharing would have no change in financial inclusion. . Hence, the null hypothesis that credit sharing information has no effect on financial inclusion among youth operating businesses in Nairobi CBD, Kenya was thus not rejected.

The last objective was to examine whether financial literacy had moderation effect on the relationship between financial technology and financial inclusion among youth operating businesses in Nairobi CBD, Kenya. After analyzing the data, the results indicated that financial literacy had no moderation role. Additionally, the null hypothesis that financial literacy has no moderation effect on the relationship between financial technology and financial inclusion among youth operating businesses in Nairobi CBD, Kenya was upheld.

5.3 Conclusions

In view of the research objectives, analysis and inference, several conclusions were made. These were mobile phone usage, internet usage, agency service, financial literacy and credit information sharing. The findings of this analysis indicate a significant correlation between the utilization of mobile phones, internet usage, and agency services, and the financial inclusion among young youth operating businesses in Nairobi CBD.

Mobile phone usage was found to be a key enabler in financial inclusion since it had a positive significant effect .In order to enhance the utilization of financial technology, mobile platforms, it is imperative to allocate resources towards investments in internet

technology, encompassing broadband internet, financial service platforms, and other related technological advancements. Financial service providers have the potential to enhance the accessibility and utilization of financial services by offering a diverse array of products and services through phone and internet platforms. Furthermore, the acquisition of financial literacy and knowledge can be fostered through formal education and specialized training, thereby facilitating enhanced accessibility and utilization of financial services. The absence of a an association of credit information sharing and financial inclusion implies that credit information sharing is merely a single component within the realm of financial services. Consequently, other factors may hold greater significance in determining the extent to which youths in Nairobi CBD are able to access and utilize financial services.

In determining whether mobile phone usage can influence financial inclusion of youths in the Nairobi CBD, a conjecture that the utilization of mobile phones has no noteworthy impact on the level of Financial Inclusion among youth operating businesses in the Central Business District of Nairobi County, Kenya was formulated. The findings established that the concept of mobile phone utilization has a probability of impacting the young individuals in the central business district of Nairobi to embrace financial services provided through mobile platforms, consequently refuting the null hypothesis as it is found to be false.

Internet usage was found to a key determinant of in financial technology and hence aids to increase financial inclusion. The results show that internet usage had the largest weight among the five constructs, thus strongly associated with financial inclusion. it is imperative

to allocate resources towards investments in internet technology, encompassing broadband internet, financial service platforms, and other related technological advancements.

The findings illustrate that the utilization of agency services facilitated an increase in the availability of service delivery, consequently influencing the financial inclusion among youth operating businesses in Nairobi CBD, Kenya. The study concludes that mobile phone usage, internet access, agency services are important and positively connected predictor characteristics that may be used to forecast financial inclusion among the youth.

5.4 Policy Recommendations

Based on the established relationships, the research has several recommendations. Policy makers should consider the importance of mobile phone usage when designing policies that are aimed at improving financial inclusion among the youth in the Nairobi CBD. In addition, agency service provider's s should consider developing mobile-based platforms that are tailored towards the needs of the youth in the Nairobi CBD. More outreach should be conducted to spread awareness about the importance of mobile phone usage for financial inclusion of the youth in the Nairobi CBD.

In respect to internet usage, policy makers should take into account the effect of internet usage on youth financial inclusion when formulating policies. For example, policies should be developed to increase access to internet in rural areas, as well as incentivize youth to use internet services to increase their financial inclusion. Additionally, financial institutions should provide digital banking services to the youth in order to increase their access to financial services.

Banks and other financial institutions that offer agency services might use authorized agents to expand their branch and service network. As a result, more people are able to benefit from the services provided by financial institutions. In addition, they may consider increasing their presence in the Central Business District, perhaps through partnerships or collaborations with other providers using youth friendly strategies to ensure that youth in the area are able to access the financial services they need.

5.5 contribution to Knowledge

The benefits accrued from the use of technology in banking outweighs the challenges from using it. Thus, the study encourages the use of technology by young people. The commercial banks should come up with banking applications that are security tamper proof with adequate security authentications and measures in place that can enable their customers especially the youth to carry out financial transactions in their convenience without the fear of losing funds.

In addition, the young people should apply technology in analyzing personal information relating to their credit worthiness. Incorporating this information online will allow faster processing of loans as well as getting information on the credit worth of a person or a business entity. In addition, they will avoid being caught in debt trap.

5.6 Areas for Further Studies

The study has mainly focused at establishing influencers of financial inclusion among the youth in the Nairobi CBD. It was limited to mobile phone usage, internet usage, agency services, credit information sharing and financial literacy among the youth in the CBD of Nairobi City. There is need therefore for a study focusing on the youths outside CBD and

other peripheral towns in Kenya. More studies with more data need to be conducted using the sociocultural factors, infrastructural development among other factors.

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World Bank (2020) Financial Inclusion

APPENDICES

Appendix I: Letter of Transmittal

Dear Sir/ Madam,

My name is Douglas Ouso Nyokwoyo, and I'm a Kenyatta University graduate student seeking a Master of Science in finance. I am conducting an investigation into financial technology, financial literacy, and financial inclusion among the youth in the central business district of Nairobi County, Kenya. You have been arbitrarily selected due to your status as a young individual engaged in the operation or management of a commercial establishment located within the Central Business District of Nairobi. I cordially extend an invitation to you to partake in this scholarly investigation by duly accomplishing the enclosed questionnaire.

This research is intended solely for scholarly objectives. All participants will be handled with utmost confidentiality. Participants are not required to disclose their identities during the survey, thus preventing any individual from being associated with their feedback. Please ensure that your feedback is sincere, informative, and reflective.

The survey is an opportunity to answer questions on what financial technology factors promote your inclusion into the financial systems, and co-create solutions that can be adapted to expand financial opportunities through technological platforms, which would enable benefit more in terms of expanded opportunities for financial access.

Thank you!

Douglas OusoNyokwoyo

Appendix II: Questionnaire

SECTION A

1. What is your gender?
    A. Male
    B. Female
2. For how long have you had an experience with a financial service through a mobile app?
    A. 1 - 2 Years
    B. 3 - 5 Years
    C. Above 5 Years

3. Please tick [√] the utmost level of education.

Level	**Tick**
Primary	
O' level	
Tertiary	
University undergraduate	
University postgraduate	

4. Are you an active customer with a specific financial service provider?
    A. Yes
    B. No

5. Which type of products and services can you access online? Please tick (√) appropriately

Service	**Tick**
Mobile lending,	
Mobile banking	

Fundraising applications	
Mobile payment	
Peer-to-peer lending applications	
Business-to-business lending	
Insurtech	
Digital payment,	
Online trade	
International money transfer	
Online foreign exchange	
Online procurement	
Online betting	
Others. Specify	

SECTION B

Mobile phone usage

6. To what degree do you concur with the aforementioned proposition regarding the utilization of mobile phones and the promotion of financial inclusion, utilizing the provided scale?Please tick (√) appropriately.

$1 \rightrightarrows$ Strongly Disagrees, $2 \rightrightarrows$ Disagrees, $3 \rightrightarrows$ Neutral, $4 \rightrightarrows$ Agrees, $5 \rightrightarrows$ Strongly Agrees

Statement	**1**	**2**	**3**	**4**	**5**
Most youths have access to smart mobile phones					
High volume of mobile money transactions are done by the youth					
A greater percentage of the Kenyan youth access their financial services through a mobile application					
Customers have embraced mobile services as a result of improved security in the mobile usage platform.					
Mobile phones are a convenient way to use to reach the youth within Nairobi and communicate on finance inclusion at the convenience					

Mobile devices serve as a convenient means of facilitating the younger generation's access to financial services at any location and time.					
The mobile banking platform is uncomplicated and expeditious in its utilization, thereby enticing a larger clientele and enhancing financial inclusivity.					
The increasing use of mobile phones has made mobile banking services more accessible.					

SECTION C

Internet usage

7. For how much do you concur with the aforementioned proposition regarding online banking and Financial Inclusion by using the scale provided? Please tick (√) appropriately.

$1 \rightrightarrows$ Strongly Disagrees, $2 \rightrightarrows$ Disagrees, $3 \rightrightarrows$ Neutral, $4 \rightrightarrows$ Agrees, $5 \rightrightarrows$ Strongly Agrees

Statement	**1**	**2**	**3**	**4**	**5**
Most youths within the Nairobi CBD prefer using internet platforms such as RTGS and EFT when making transactions					
Youths can access loans through the use of internet					
The youths can easily access the internet within the Nairobi CBD					
The youth are able to deposits and withdrawals online					
The E-statements are easy to get through the internet					
The youth are able to transact online anytime ,anywhere					
The youth are able to transact online					
Peer to peer transactions are possible through the internet					
The internet financial apps are easy to navigate					

SECTION D

Agency Services

8. Using the provided scale, to what level would you concur with the subsequent statement about agency services? Please select the (√) appropriately.

$1 \rightrightarrows$ Strongly Disagrees, $2 \rightrightarrows$ Disagrees, $3 \rightrightarrows$ Neutral, $4 \rightrightarrows$ Agrees, $5 \rightrightarrows$ Strongly Agrees

Statement	**1**	**2**	**3**	**4**	**5**
Through the agents, the youth are able to open accounts					
Through the agents, the youth are able to make withdrawals					
The youth are able to get remittances through the agents					
The youth are able to get insurance through the agents					
Through the agents, the youth are able to pay for utilities like water and electricity					
The youth can get payments through the agencies easily					
It is convenient for the youth to transfer funds through the use of agents					
Through the agents, the youth are able to enquire their balances					

SECTION E

Credit Information Sharing

9. To what extent do you agree with the following assertion Credit Information Sharing by using the scale provided? Please tick (√) appropriately.

$1 \rightrightarrows$ Strongly Disagrees, $2 \rightrightarrows$ Disagrees, $3 \rightrightarrows$ Neutral, $4 \rightrightarrows$ Agrees, $5 \rightrightarrows$ Strongly Agrees

Statement	**1**	**2**	**3**	**4**	**5**
There are a number of Credit reference bureaus					

Quite a number of youths are listed by the credit reference bureaus					
Most of the youth are denied funds due to being listed by the CRBs					
The CRBs give unbalanced information about the youth denying them funds					
Most youths are not willing to pay acquired loans					
The CIS is a bib hinderance for the youth in fund's acquisition					
Without prior skills in financial literacy it is costly to get a financial product					

SECTION F

Financial Literacy

10. 10. To what degree do you concur with the aforementioned proposition regarding Financial Literacy and Financial Inclusion by employing the provided scale?

    Please tick (√) appropriately.

    $1 \rightrightarrows$ Strongly Disagrees, $2 \rightrightarrows$ Disagrees, $3 \rightrightarrows$ Neutral, $4 \rightrightarrows$ Agrees, $5 \rightrightarrows$ Strongly Agrees

Statement	**1**	**2**	**3**	**4**	**5**
Financial understanding empowers young individuals to gather valuable fiscal knowledge.					
Financial literacy enables youths to make sound judgement on borrowing					
Financial literacy enables youths to have financial goals					
Financial literacy ensures the youth are able to save regularly					
Financial literacy ensures the youth in Nairobi are able to acquire assets					

Financial literacy enables one to easily access a financial service					
Most of the financial products require skills in financial literacy among the youth to enable uptake among the youth.					
When armed with requisite financial literacy, the youth are able to accumulate wealth over time.					

SECTION G

Financial Inclusion of Youth in Nairobi County

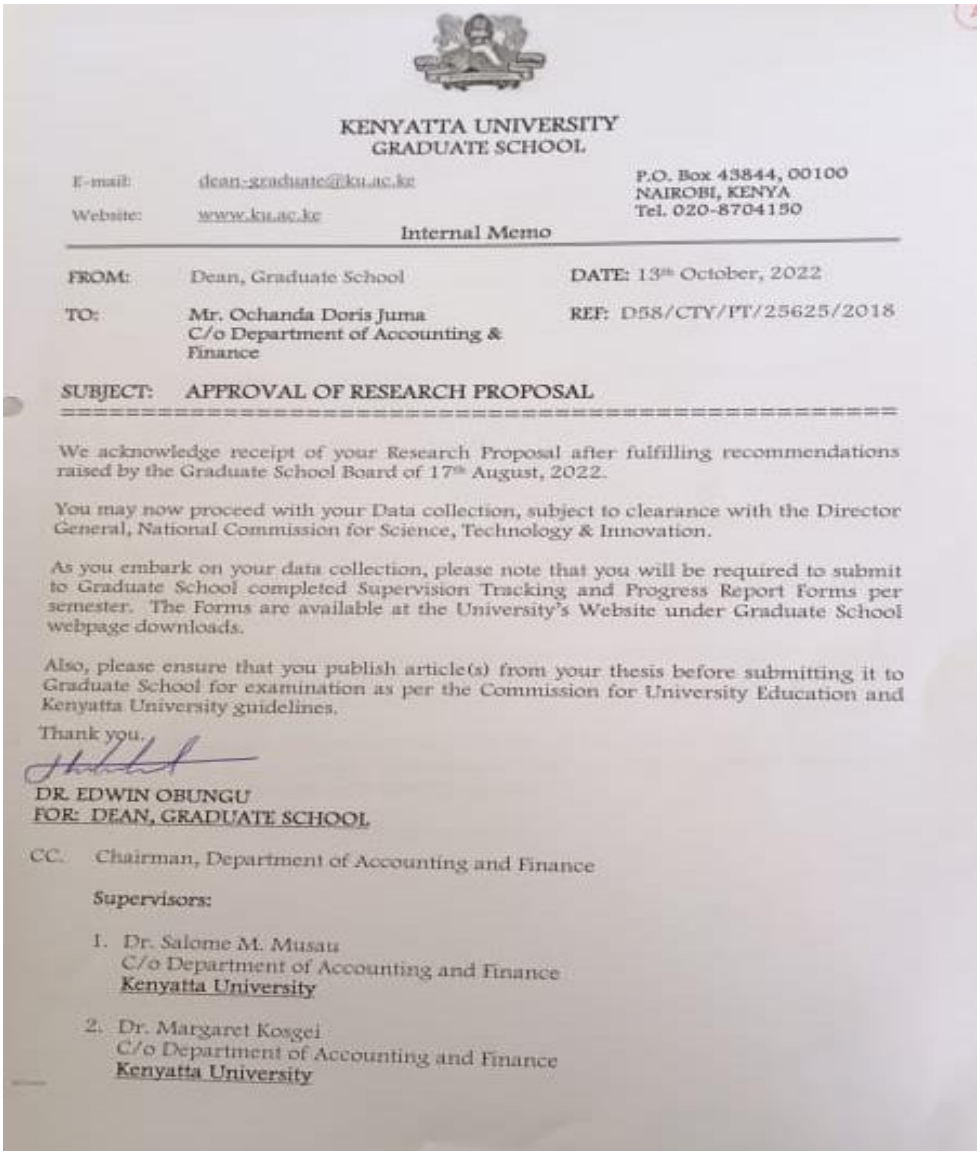
11. To what extent do you agree with the following assertion on Financial Inclusion of youth in Nairobi County by using the scale provided? Please tick (√) appropriately.

$1 \rightrightarrows$ Strongly Disagrees, $2 \rightrightarrows$ Disagrees, $3 \rightrightarrows$ Neutral, $4 \rightrightarrows$ Agrees, $5 \rightrightarrows$ Strongly Agrees

Statement	**1**	**2**	**3**	**4**	**5**
Most youths within the Nairobi CBD are able to access government funding through the use of mobile phones					
The youth are able to repay their loans through the use of internet					
The number of loans that are being taken up by the youth has risen over time					
The cumulative savings by the youth has increased over a duration of time					
There are many forums that the youth can learn about financial management within the city					
The listing of the youth by the CRBs has prohibited them from up taking otherwise useful funding					
The use of the internet has helped the youth be able to make business transactions on a 24-hour basis					

The agents have made it easy for the youth to transact because they are open for long hours.					

Appendix III: Approval from Graduate School



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NAIROBI, KENYA
Tel. 020-8704150

Internal Memo

FROM: Dean, Graduate School

DATE: 13th October, 2022

TO: Mr. Ochanda Doris Juma
C/o Department of Accounting & Finance

REF: D58/CTY/PT/25625/2018

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

We acknowledge receipt of your Research Proposal after fulfilling recommendations raised by the Graduate School Board of 17th August, 2022.

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and Progress Report Forms per semester. The Forms are available at the University's Website under Graduate School webpage downloads.

Also, please ensure that you publish article(s) from your thesis before submitting it to Graduate School for examination as per the Commission for University Education and Kenyatta University guidelines.

Thank you.

DR. EDWIN OBUNGU
FOR: DEAN, GRADUATE SCHOOL

CC. Chairman, Department of Accounting and Finance

Supervisors:

1. Dr. Salome M. Musau
   C/o Department of Accounting and Finance
   Kenyatta University
2. Dr. Margaret Kosgei
   C/o Department of Accounting and Finance
   Kenyatta University

Appendix IV: Research Permit NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 976930

Date of Issue: 01/February/2023

RESEARCH LICENSE

This is to Certify that Mr.. DOUGLAS Ouso NYOKWOYO of Kenyatta University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Mandera, Nairobi on the topic: FINANCIAL TECHNOLOGY, CREDIT INFORMATION SHAIRING AND FINANCIAL INCLUSION AMONG THE YOUTH IN NAIROBI CITY COUNTY, KENYA for the period ending : 01/February/2024.

License No: NACOSTI/P/23/23436

976930

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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See overleaf for conditions