INFLUENCE OF INFORMATION COMMUNICATION TECHNOLOGY ON MARKET ACCESS BY SMALL AND MEDIUM-SIZED ENTERPRISES IN TRANS NZOIA COUNTY, KENYA

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DECLARATION AND RECOMMENDATION

Declaration

This thesis is my original work and has not been presented for the award of a degree or any other award in any other University.

Sign……..... Date……...

Tom Wekesa Musungu

BUS-3-6702-2/2013

Recommendations

We confirm that the candidate carried out the work reported in this thesis under our supervision.

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Sign…….....Date……...

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DEDICATION

I dedicate this work to Virginia Nasambu and the late Peter Khisa Musungu.

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I would first like to thank God for granting me this opportunity to undertake my Masters studies successfully. I am so grateful to my supervisors who are Prof. Paul Maku Gichohi (PhD) and Dr. Nancy Rintari (PhD) for always dedicating their time to guide them through this proposal research at various stages. Special acknowledgement goes to the Kenya Methodist University for providing an enabling environment into which excellence in my academics has been delivered through my lecturers and other academic and non-academic staffs. My gratitude also goes to the library department has been ensuring that I am trained on using and retrieving e-resources and as well as guiding me through knowing how to cite and reference according to APA 7th edition format. I am thankful to my immediate and extended family members for always believing in me through this academic journey. To my friends and colleagues, may the Lord bless you abundantly for always encouraging me to undertake the step of faith till it's done. I am so much grateful for my course mates that have always provided a friendly environment when doing masters coursework as well as never tiring when calling them for advice on various key areas such as statement of the problem in this research.

ABSTRACT

Accessing a sustainable market should be a priority for SMEs to expand their business horizons to new opportunities and clients. New opportunities promote the urge of SMEs to employ all legally possible means to offer their products and services to identified markets. As SMEs strived to ensure their products and services reach out to people both locally and internationally, effective use of ICT was a major concern to SMEs. This was because SMEs were struggling with unsuccessful marketing initiatives. This derailed their chances of accessing new markets or establishing their roots further in their current market. The general objective of this study was to assess the influence of information communication technology on market access by SMEs in Trans Nzoia County, Kenya. The specific objectives were to examine the influence of information communication technological applications, data management, social media management, and cyber security on market access by SMEs in Trans Nzoia County, Kenya. The study was guided by three theories which were the unified theory of acceptance and use of technology, theory of administrative behavior and socio-technical systems theory. Descriptive research design was used in the study. The target population was 37 SMEs whose respondents were 92 ICT officers, 81 compliance officers, and 77 marketing officers. The study sampled the 37 SMEs using simple random sampling method to obtain 11 SMEs. The respondents were also sampled using simple random sampling method to get 11 general managers, 28 ICT officers, 24 compliance officers, and 23 marketing officers. Data collection was done using interview guides and closed-ended questionnaires. To ensure validity and reliability, pilot-testing of questionnaires was done at Kenya Cooperative Creameries in Elgeiyo Marakwet County. Coded data in SPSS 24.0 computer program analyzed quantitative and qualitative data using the descriptive statistics such as mean, percentage and standard deviation. Multiple regression was used to test hypothesis of the study. Tables, graphs and detailed explanations were used to present the final results of the study. The study found out that the only training offered to all staffs was on orientation on the SMEs systems during their recruitment; SME management did not originate from reliable sources such as business intelligence systems but rather on personal experiences, emotions, and available options that were cheap; SMEs did not make improvements of new goods and services based on customer feedback but rather on other factors; and SMEs were very far from ensuring that their goods and services innovations were secure even by storing the copies on clouds security. The study recommends that SMEs' management should introduce periodical training on how to use ICT applications. The board of management should introduce policies that guide them in decision making. The management should introduce new regulations that allow decisions to be made with partial consideration of client's feedback. The SMEs' management should introduce strict policies on password confidentiality.

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LIST OF ABBREVIATIONS

ADB	African Development Bank
AERC	African Economic Research Consortium
APIs	Application Programming Interfaces [APIs]
BBB	British Business Bank
CAK	Communications Authority of Kenya
CBK	Central Bank of Kenya
CGTN	County Government of Trans Nzoia
CRB	Credit Reference Bureau
CRM	Customer Relationship Management
DoS	Denial of Service
EF	Ecommerce Foundation
EC	European Commission
EDI	Electronic Data Interchange
EU	European Union
FIFO	First in First out
ICT	Information Communication Technology
IT	Information Technology
ITC	International Trade Center
KeMU	Kenya Methodist University
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KRA	Kenya Revenue Authority
KSHS	Kenyan Shillings
KNEBS	Kenya National Bureau of Standards
LIFO	Last in First out

LILO	Last in Last out
MARKUP	Market Access Upgrade Program
MS	Microsoft System
MSMEs	Micro, Small- and Medium-Size Enterprises
NACOSTI	National Council of Science Technology and Innovation
NCLR	National Council for Law Reporting
OECD	Organization for Economic Co-operation and Development
POS	Point of Sale
SMEs	Small and Medium-sized Enterprises
SMMEs	Small, Medium and Micro Enterprises
SST	Socio-technical Systems Theory
TAB	Theory of Administrative Behavior
TCDC	Telcom Community Development Center
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UNIDO	United Nations Industrial Development Organization
UTAUT	Unified Theory of Acceptance and Use of Technology
WB	World Bank
WTO	World Trade Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Globally, nations have understood the significance of SMEs. In these nations, SME owners have enjoyed the benefit of the government's cushion from harsh economic situations (Mugo, 2016). In addition, the government has also protected them from unfair competition from larger firms. This is because SME owners have reduced the unemployment gap in these nations. Therefore, the government has not allowed larger firms to render these SMEs owners jobless by lack of restrictions on various operations. These restrictions have helped SMEs get opportunities to access the market equally with larger firms (Otoo et al., 2019).

Regionally, SMEs' presence in an economy has for the past years proved effective in nationals such as South Africa, Nigeria, and Rwanda (World Trade Organization [WTO], 2020). This effectiveness ranges from diverse contributions such as impartial circulation of income, employment, and production of goods and services. First and foremost, the citizens have generated and re-generated revenue which has evenly been distributed based on an SME's creativity and efficiency (WTO, 2020). The continuous presence of SMEs in any nation signifies that the economy is efficient and sustainable (Gesicho, 2018). SMEs create healthy competition among various producers of goods and services, hence reducing the monopolistic nature of doing business. As SMEs compete, goods and services are made available to citizens of the nation.

Locally in Kenya, citizens do not have to worry when a good or service becomes unavailable since they could get similar services in another SME within the same locality

(Clement, 2020). The national and county governments have also benefited from SMEs since they collect revenues through the issuance of licenses, business permits, and taxes. In return, the governments have been always on their toes towards improving on economic policies, laws, and regulations that benefit the SMEs directly (Cassetta et al., 2018; Clement, 2020).

Therefore, a small and medium-sized enterprise [SME] was defined as any firm with few employees ranging from 20-250 (Tran, 2011). However, the revenue threshold was based on the originating nation. Walden et al. (2020) stated that the Australian Bureau of Statistics defined an SME as an average-sized business with 5-199 staff and annual revenue of not more than 10 million Australian dollars. Suraweera (2009) explained that in New Zealand, SMEs were defined by a minimum of 5 and a maximum of 50 employees while in North America a minimum of 51 and a maximum of 500 were considered to be SMEs. SMEs in Europe were defined as business enterprises with a yearly turnover of not less than 10 million and not more than 50 million Euros whose maximum number of staff was less than 250 but not less than 50. (European Commission [EU], 2015).

The definition of an SME in Kenya was any registered business entity that had a capacity of fewer than 100 employees but more than fifty employees (National Council for Law Reporting [NCLR], 2012). In addition, Kenya's SMEs annual turnover was less than thirty million but above five hundred thousand Kenyan shillings [KSH] (NCLR, 2012). United Nations Development Programme [UNDP] (2015) differentiated Micro, Small- and Medium-Size Enterprises (MSMEs) with SME in that SMEs did not cover unregistered and informal sector businesses such as Jua-kali artisans or shops.

In a further Kenyan business report by Trust Africa (2013), SMEs in Kenya were explained as those that employ between 10 and 50 workers with annual turnovers between Ksh 500,000 and Ksh 5 million and capital formation between KES 5 million and KES 20 million for services or between Ksh 5 million and Ksh 50 million for enterprises doing manufacturing. The definition of an SME as given by NCLR (2012) was adopted in this study. That it is an organization that had 50-100 staff and with a turnover of Kshs 500,000 to Kshs 30,000,000. In line with this definition, SME examples included manufacturing firms, hotels, processing industries, assembly firms, and supermarkets (International Trade Center [ITC], 2019).

Further on, SMEs strived to ensure they had other creative ways of accessing the market. These creative ways were personal connections, word of mouth advertisement, branding of the SMEs, corporate social responsibility, and participation in the welfare of the clients' needs among others. However, in the 21st century, information communication technology (ICT) had become part and parcel of people (Rahayu & Day, 2017). SMEs had also involved themselves in the utility of ICT towards reaching potential and current clients hence improving their access to the market. As SMEs strived to ensure their products and services reached out to people both locally and internationally, effective use of ICT was a major concern to SMEs staff. This was because, people used ICT for various reasons, and however the SMEs entities were not able to maximize the use to their advantage (Wang et al., 2016).

This, therefore, gave this study a need to explore the influence of ICT on market access among SMEs in Trans Nzoia County, Kenya. This chapter therefore examined the background of the study, statement the problem, purpose of the study, research

objectives, research questions, significance of the study, and limitations. Thereafter the study concluded this chapter by examining the scope and definition of terms.

1.1.1 Market Access by SMEs

Knight Frank (2020) defined market access as the conditions such as pricing that cause tax or non-tax actions to be approved by a government for the entry of precise goods and services in their local market. Another definition by WTO (2020) indicated that market access was the capacity of a firm to sell its goods and services to a local or international market. Therefore, market access in this study was defined as the ability of SMEs to get authorization from relevant authorities to offer their goods and services at the right price without biasness in both local and international markets. Market access in a firm was often indicated through the level of taxes charged; duties on imported inputs; quotas on exported products; levies on products and services; rules and regulations in place; prices of products; and quantities of products and services sold (British Business Bank [BBB], 2019; WTO, 2020). This study adopted these indicators to substantiate how SMEs were coping with access to various markets.

It was the intended goal of any SME to offer its products and services to its clients in any market without any form of charges, commonly known as free trade. However, allowing free trade without any form of restrictions caused large firms to take advantage of the market by using their advanced technologies to produce, market, and offer very cheap goods (Cant, 2017). These cheap goods tended to push SMEs out of the global market such as America, Europe, and Asia because they lacked various ICT assets to produce and sell their products cheaply in the markets. Nevertheless, SMEs were gaining momentum towards advancing their operations and marketing to be ICT-focused (Deng et al., 2019).

The advancement and shift in focus towards ICT infrastructure was not a smooth transition among various SMEs globally. SMEs getting approval to access various international markets, encountered challenges (Deng et al., 2019). SMEs in America experienced poor information management; lack of skills required in operating various ICT trading applications; low capital investment in ICT infrastructure such as servers; loss of clients' data due to computer viruses; and poor ICT response management such as late responses on client's questions about the products on social media platforms (Clement, 2020; Ecommerce Foundation [EF], 2017; United Nations Conference on Trade and Development [UNCTAD], 2021).

In Europe, there were challenges such as high maintenance charges on internet access tools; poor data mining skills and infrastructure; cyber theft on ideas and rolled-out marketable products and services; poor networking with other SMEs offering similar products; and lack of price analysis experts whose purpose is to guide the SMEs on price management (Cardoso & Martinez, 2019; EF, 2016; European Commission [EU], 2020). In Asia, the challenges experienced related to unsuccessful marketing of online programs; high tariffs charges; stiff competition from international SMEs that were more advanced especially about technological aspects; poor online research skills on the demands of the customers; low creativity in developing advertisement posters on social media; low attention towards updating ICT applications hence frequency in malfunctions; high costs in developing customized ICT applications (Caputo et al., 2018; Deng et al., 2019; Haneem et al., 2019; Rahayu & Day, 2017; Shi et al., 2020).

In Africa, poor ICT infrastructure due to lack of funds challenged South African SMEs (Mkansi, 2021). In addition, there was idea theft due to cyber hacking; lack of creativity in making advertisement clips and posters; low skills and enthusiasm to explore other

various applications; poor social media management whereby messages from clients are hardly checked; negative mentality towards advancing to ICT hence continuous use of traditional techniques (Ansong & Boateng, 2018; Arslan et al., 2019; Maduku et al., 2016; Mkansi, 2021; Mkansi et al., 2018). In West Africa, studies indicated SMEs in a nation such as Nigeria, were battling various issues. These issues included poor research skills whereby SMEs did not investigate various costs associated with new market access; high internet charges; and lack of investments in marketing (Awa et al., 2017; Eze et al., 2020; Hove & Karimov, 2015).

In North Africa, SMEs in nations such as Morocco, Tunisia, and Egypt faced various issues. These issues included monopoly by government and wealthy private agencies in various markets such as in telecommunications market whereby new firms required to have costly set-up infrastructure; and unprecedented SMEs customer preferences in various ICT applications such as mostly relying on Facebook and avoiding others like Yubo, WT social and Mastodon (Molinillo & Japutra, 2017; Olaitan & Flowerday, 2016; Paypal, 2018). In East African nations such as Rwanda, Tanzania and Uganda experienced low response rate after costly online marketing initiatives; increased online theft of clients' information through hacking of SMEs social media platforms; lack of ICT system maintenance administrators; tough government rules and regulations on the utility of ICT infrastructure set-up; and lack of authentication of ICT applications exposing SMEs operations to losses due to frequent crashing leading to few customers.

In Kenya, there were increased competition from international SMEs offering similar products and services online; corruption from larger firms to government agencies to have leeway on market access; complicated and expensive regulations from the government to establish ICT infrastructure by SMEs such as purchasing Kenya

National Bureau of Standards [KNEBS] certified SMEs computers; lack of data mining skills; and loss of customers and business opportunities due to ICT applications downtime (Gitonga, 2021; ITC, 2019; Mutwiri, 2018; Otoo et al., 2019). Therefore, these initiatives made on market access of SMEs were not at par with the input invested towards the ICT infrastructure. ICT was therefore a key venture into which priority could be placed to seal loopholes and develop them further for the benefit of the SMEs.

1.1.2 Use of ICT by SMEs in Accessing Markets

ICT was defined as the ability to receive, process, retain, share information from one entity to the other through the use of internet-enabled computerized systems/ programs (Mkansi, 2021; Statista, 2018). The use of ICT in the daily operations of an SME boosted how information was received, processed, shared, and stored. Information on clients, products, services, and processes keeps advancing as time elapses. Therefore, SMEs owners strived to be always acquainted with the current happenings so that they did not miss out on business opportunities (Shi et al., 2020). SMEs utilized information to make informed decisions and strategize various organizational goals. ICT restructured how business processes were done. There was more focus on the efficiency and results of the process (Gustein & Sviokla, 2018). This was because, the clients were now more than ever informed hence the rapid advancement of tastes and preferences (Gustein & Sviokla, 2018). SMEs used ICT to add value to their products, introduce new products, and eliminate unmarketable products from their stocks.

Adding to that, Global SMEs in nations such as America, Russia, and Europe, were able to interact with various suppliers in real-time through e-purchase computer applications; The cost of operations and efficiency decreased and increased respectively due to quality management of clients data on computerized systems; SMEs were able to communicate

efficiently with their clients via social media platforms such as WhatsApp and google meet video calls, Facebook and Instagram as they placed their orders; and improved performance of SMEs since they use social media platform to learn what their competitors are doing as far as new goods and services are concerned (Cui et al., 2018; Gustein & Sviokla, 2018; Wang et al., 2016).

In the United Kingdom, and Asia, there was reduced wastages due to developing goods and services as demanded by clients through ICT applications. For example, hotels cooking and serving food orders via food ordering apps; cyber security has been made possible since payments made were safe and efficient through online payments such as Paypal; ICT reduced client's paperwork such as clients' purchase orders that increased costs such as storage costs in SMEs; there had been the introduction of ICT applications such as language translation apps that enable SMEs, clients, and suppliers in different countries of origin communicate; there had been the collaboration of ICT with internet whereby SMEs can update their device software hence improved safety measures from cyber hacks; SMEs were able to convey communication fast within and out of the organization due to quick social media response rates to clients' inquiries (Cant, 2017; Cassetta et al., 2020; Cui et al., 2018; Gustein & Sviokla, 2018; Wang et al., 2016).

Regionally in nations such as in South Africa, Ghana, and Algeria, SMEs were using computerized applications such as Skype to facilitate fast decision-making among SMEs management by the meeting; SMEs were able to manage and cut costs linked to errors made on client names and addresses since they had reliable clients' information database; safe payments were facilitated by use of swift banking; ICT had given the clients of an SME a chance to give their feedback on purchased goods and services through social

media platforms like Facebook thereby improving efficiency (Okundaye et al., 2019; Osano, 2019; Statista, 2018).

In Kenya, there was fast and reliable payments made possible due to the use of ICT applications like M-Pesa and Point of Sale [POS] banking; Unnecessary fines were reduced due to quick communication through emails from Kenya Revenue Authority (KRA) on deadlines for filing taxes; SMEs were able to pay their levies efficiently since they had data back-up servers that helped them record and store all purchases and sales transactions; and social media platforms such as Twitter and Facebook were used by SMEs to receive compliments or complains about their operations from citizens (Gitonga, 2021; Mugi, 2016; Nyakundi, 2018; Okoth, 2013). Despite these developments brought about to SMEs through the use of ICT, various issues were noted. These issues ranged from malfunctions of ICT software and apps; high cost of maintenance and repair of computer devices; advanced computer viruses; hacking; and lack of computer skills among SME users. In Kenya, SME owners were spread throughout the counties in the nation. SMEs in Trans Nzoia County in Kenya also experienced various challenges while dealing with ICT in their operations.

1.1.3 Trans Nzoia County

This is one of the Kenyan counties located in the former Rift Valley province. This county has Kitale as its largest town. Trans Nzoia County's major economic activity is agricultural production. According to a report by the County Government of Trans Nzoia [CGTN] (2018), the county's SMEs such as Trans Nzoia County resort hotel, Aturkan and Mimi house hotel previously struggled with poor initiatives made on marketing research and low access to research and market statistics. This was due to the unavailability of ICT infrastructure in many firms. For example, many SMEs lacked

Village Enterprise lack enterprise resource planning [ERP] infrastructure to digitalize the processes of production.

Further on, the county also had a shortage of skills related to the administration of entrepreneurship and available technological advancement in SMEs such as Kapsara Tea Factory (CGTN, 2018). This issue had gone to extremes of very low skills on how the SMEs in the area could add value to maize production. Other problems affecting Trans Nzoia County included the closure of SMEs due to a lack of clear policies on levies such as business permits. This was whereby, the SMEs had high and inconsistent levies on the amount charged (Amdany et al., 2018). SMEs therefore found themselves in a hard situation to sustain themselves hence closing down.

These reasons gave this study a need to assess the influence of information communication technology on market access by SMEs in Trans Nzoia County, Kenya.

1.2 Statement of the Problem

Accessing a sustainable market was a priority for SMEs to expand their business horizons to new opportunities and clients. New opportunities promoted the urge of SMEs to employ all legally possible means to offer their products and services to identified markets (ITC, 2019). One of the ways was the utilization of ICT towards providing solutions to the new business demands of the 21st century both from international and local markets (Eze et al., 2020). These solutions which ranged from storing client data; analyzing market trends; conducting online research on business opportunities; and maintaining social media platforms active, were expected to be an entry ticket to access new markets (BBB, 2019). In the long run, access to markets ensured longevity which came in hand with the growth of the SMEs (Nyakundi, 2018).

However, SMEs in Kenya were struggling with unsuccessful marketing initiatives (Central Bank of Kenya [CBK], 2018; World Bank [WB], 2018). This derailed their chances of accessing new markets or establishing their roots further in their current markets (African Development Bank [ADB], 2018). According to Eze et al. (2020), SMEs failed because they did not invest in marketing. Investing in marketing encompassed ensuring that the prospective clients knew about the business's products and services (Amayi, 2019). ICT was established as a reliable way of informing clients without strain (Mugo, 2016). However, SMEs were not able to establish how they used ICT to their benefit and attracted more clients (Mugo 2016; Organization for Economic Co-operation and Development [OECD], 2018). Many SMEs tried to use ICT applications to inform potential clients of their products and services but little achievement was gained (Gesicho, 2018). This was because SMEs faced the challenge of maintaining and managing data on products and their clientele databases (Gesicho, 2018). In addition, the few SMEs that succeeded in utilizing ICT in their marketing operations faced the challenge of cyber security issues such as computer viruses and hacking of their social media platforms by malicious individuals (ITC, 2019).

Further on, information on the current opportunities in the market was not readily available (OECD, 2018). Previous studies such as Gesicho (2018); Mugo (2016); Okoth (2013); Otuya (2018) indicated that market access was a hard task since SMEs were battling with poor technological development, political influence, cultural change, and changes in customer preferences. However, these studies did not articulate well how SMEs could utilize technology to their advantage to research the cause of customers' preferences changes and how to use language apps to convert languages to communicate with potential foreign clients. This, therefore, created the need to assess the influence of

information communication technology on market access by SMEs in Trans Nzoia County, Kenya.

1.3 General Objective

The general objective of this study was to assess the influence of information communication technology on market access by SMEs in Trans Nzoia County, Kenya.

1.4 Specific Objectives

i. To assess the influence of information communication technological applications on market access by SMEs in Trans Nzoia County, Kenya.
ii. To establish the influence of data management on market access by SMEs in Trans Nzoia County, Kenya.
iii. To investigate the influence of social media management on market access by SMEs in Trans Nzoia County, Kenya.
iv. To examine the influence of cybersecurity on market access by SMEs in Trans Nzoia County, Kenya.

1.5 Research Hypothesis

i. There is no significant relationship between information communication technology applications and market access of SMEs in Trans Nzoia County, Kenya
ii. There is no significant relationship between data management and market access of SMEs in Trans Nzoia County, Kenya
iii. There is no significant relationship between social media management and market access of SMEs in Trans Nzoia County, Kenya
iv. There is no significant relationship between cybersecurity and market access of SMEs in Trans Nzoia County, Kenya

1.6 Justification of the Study

The need for the study was informed by the crucial role played by SMEs in development in Kenya yet a gap existed between theory and practice. The results of the study were of relevance to all the stakeholders involved in service provision specifically to the county governments in their effort to expand employment through their support of the SMEs. The study aimed at ascertaining the need for awareness creation for ICT applications, data management, social media management, and cyber-security. Knowledge was important for policymakers, researchers, and academicians.

1.7 Significance of the Study

The study was important to the SMEs management on knowing the various ICT challenges faced by other SMEs when accessing various markets. Once these challenges were known, the study provided various solutions that could use to overcome these challenges. Therefore, SMEs could apply various solutions implied in the study to enable them to access markets more easily.

The government would benefit from this study when various challenges touching on government agencies' shortcomings were identified. The government through the ministry of trade could get a basis to formulate policies that facilitated easy access of SMEs in Kenya in various local markets. The government could also negotiate better on behalf of Kenyan SMEs on international markets to get more friendly tariffs and charges.

The study would also provide new knowledge to the field of marketing when the influence of ICT on market access in Trans Nzoia County, Kenya would be known especially during the covid-19 pandemic era. The economic disruptions caused by covid-19 caused most business interactions to shift towards ICT. Therefore, there was a

need to get updated solutions to a pressing current need on how SMEs could access new and existing markets while focusing on the use of ICT.

The study would benefit SME clients in understanding how ICT was advancing various business operations. The customers would get educated on the processes involved in supplying goods and services in a market through online means. This would help them boost their confidence in the use of ICT applications to purchase products and services hence receiving utmost satisfaction from their respective locations.

SMEs suppliers were also merited in this study. Suppliers were equipped on various platforms that SMEs used to advertise for various tenders and bids so that they could supply. These platforms would give the suppliers various information on how to place a bid for successful selection. In addition, full costs disclosure could be provided so that the suppliers were able to estimate the cost and benefits of the whole tendering process. The suppliers would get a chance to participate in the process by asking queries on areas not clear on the tendering process. This would hence improve their bidding experience.

Future researchers would get more knowledge on how the advancement of the ICT influenced accesses to the market. They understood how various ICT applications, data management, social media management, and cyber security played part in ensuring SMEs got access to new and existing markets.

The general population would find this study useful too. This was because they got to understand the contributions made by the government to equip SMEs to access markets. Once they understood this, they were be able to assess the milestones contributed by the government towards the delivery of big-4 agendas promises in Kenya.

1.8 Scope of the Study

This study was conducted in Trans Nzoia County. It examined the influence of ICT on the access to the market of SMEs in Trans Nzoia County. The study collected data from SME general managers, ICT officers, compliance officers, and marketing officers. The study investigated how ICT applications, data management, social media management, and cyber-security contributed towards ensuring SMEs got access to new and existing markets. However, this study did not examine other factors such as ICT software. This study took 6 months to complete.

1.9 Limitation of the Study

Due to rapid changes in ICT infrastructure, SMEs could have adopted different levels of technologies. Different levels of technologies had different types of challenges hence unevenness in computer-related functions issues. This was the key challenge in this study. For example, in as much as SMEs were all using computers, there were SMEs using Apple computers while others used Hp and other brands of computers. Apple computers were very fast in executing and processing data. Therefore, the level of efficiencies related to apps, ICT applications, data management, social media management, and cyber-security in SMEs varied greatly. It was very hard to see an Apple computer hang when commanded to execute a function. In addition, hacking an apple password was very difficult as compared to other types of computers. However, the study had a section in the questionnaire in which SMEs users were inquired on the various brands of computers they used. Identification of various brands would help the study to inquire about the problems associated with those specific brands of ICT infrastructure.

The second limitation was the various organizational confidential policies. These were policies that restricted employees from engaging in any activity that exposed the operations of the organization to various types of risks. However, the study sought various authorizations such as Kenya Methodist University [KeMU], National Council of Science Technology and Innovation [NACOSTI], and approval letter from the SME management. This created confidence in the respondents to partake in the study.

1.10 Assumptions of the Study

This study was guided by the assumptions that the respondents would truthfully give true and reliable responses. In addition, all SMEs respondents sampled would have interacted with ICT infrastructure in one way or another within their organization. Lastly, SMEs had installed ICT infrastructures.

1.11 Definition of Terms

Information Communication Technology

ICT was defined as the ability to receive, process, retain, share information from one entity to the other through the use of internet-enabled computer systems/ programs (WTO, 2020).

Market Access

This was the ability of SMEs to get authorization from relevant authorities to offer their products and services at the right price without biasness in both local and international markets (Knight Frank, 2020; WTO, 2020).

Small and Medium-Sized Enterprises

A small and medium-sized enterprise [SME] was any registered business entity that had a capacity of fewer than 100 employees but more than fifty employees (National Council for Law Reporting [NCLR], 2012).

Marketing

This was the process of making the firm's products and services known to people and other firms to increase sales (Statista, 2018).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter indicated existing literature on predominant ICT applications, data management, social media management and cyber-security factors that influenced market access. The review also gave a summary of various gaps identified in the literature that the current study intended to fill. Similarly, it later on expounded on the theoretical frameworks that supported the study and concluded with a conceptual framework.

2.2 ICT Applications and Market Access by SMEs

An ICT application was defined as computerized program, system or software that computer operators/users distinguished it as tools for a particular acknowledge purpose (Abdullahi et al., 2021; African Economic Research Consortium [AERC], 2019; Organization for Economic Co-operation and Development [OECD], 2019). For example, though employees used Microsoft System [MS] to perform office related functions, they distinguished MS word for typing a document, MS excel for calculating mathematics, and MS Access for maintaining database among others. ICT applications in a SMEs included electronic mails, internet, intranet, electronic banking, electronic commerce, telephones, mobile phones, and video calls (google meet, zoom) (Mkansi, 2021; OECD, 2019). These applications enabled SMEs perform related functions and were therefore characterized by ability of SMEs to send mails, deposit and withdraw funds from banks, market, sell, buy, and communicate among others. Authors had at

length explained the role that ICT applications played towards enabling SMEs access both regional, local and international markets.

European Union [EU] (2021) explored various strategies that EU had introduced to handle problems related to SMEs access to markets. The report reveals that there was an introduction of EU Helpdesk, the Access2Markets Platform and the Chief Trade Enforcement Officer. In relation to ICT application, Access2markets website which was a combination of Trade helpdesk and market access database, provided information on tariffs, rules of origin, product requirements, customs procedures and formalities, VAT/excise duties/sales taxes, trade barriers, and trade statistics. EU (2021) posited that access2markets application enabled companies that were not located in European nations access market and trade with companies located in European nations. However, the report complained of very hard terminologies that were used in access2markets website. These terminologies were an issue especially to SMEs owners who did not possess prior experience and interpretational skills in international markets.

Westerlund (2020) investigated how becoming digital had influenced the growth and globalization of online SMEs in Canada. Using descriptive research design, the study 535 examined online SMEs. Westerlund (2020) discovered that online SMEs dealing with international markets were very different from their local inclined counterparts. The former had a higher degree of information systems such as CRM and ERP software, business networks, cyber resilience. This meant that online SMEs dealing with international markets had more advanced computerized systems and relied heavily of reliable computer applications to market their goods and services, sell, receive payments and also monitor their competitors. Westerlund (2020) explained that the reason as to why local inclined online SMEs were not able to beat their counter-parts, was because managing business models scaling in online circumstances is challenging.

This was because international focused online SMEs were dealing with all kinds of problems such as advanced hackers; complicated malwares such as computer viruses; stiff competition from SMEs in more advanced nations; and complex government regulations to curb online fraud such as money laundering. Westerlund (2020) concentrated mainly on purely online SMEs that dealt with local markets and those that dealt with international market. The study did not explore SMEs that had both online and physical entities which gave this current study a need to investigate how purely online, purely physical, and SMEs that had online and physical entities strive to ensure they access both international and local markets. The current study thus investigated both online and physical SMEs located in Trans Nzoia County. In addition, the study did not provide any evidence of pre-testing their study. Therefore, the current study conducted a pre-test the study's instrument before data collection.

International Trade Center (2020) examined the effect that covid-19 lockdown had on SMEs activities. The report indicated that the various SMEs had shifted to production of goods such as masks, personal protective equipment, disinfectants, and sanitizers. To ensure these products were sold as soon as possible, they used ICT application such as websites and e-commerce applications to market. The payments were mainly been done via mobile money such as Western union, PayPal and M-PESA. However, when there was downtime of websites due to system maintenance, losses were inevitable since SMEs key selling platforms was closed.

According to Hagsten and Kotnik (2017), SMEs used ICT as an enabler of internationalization. The study relied on 250 SMEs who had 10-249 employees to collect data. Hagsten and Kotnik (2017) revealed that websites, e-sales platforms and broadband internet connection to employees had enabled these SMEs to easily access both local and international markets. Nevertheless, Hagsten and Kotnik (2017)

lamented that relevance and priority of ICT applications use by firms was not even in various SMEs in diverse nations. However, the study did not expound on the reasons for lack of prioritization of ICT applications by these SMEs and how that affected their ability to access markets. This gap guided the current study to get more information on why some SMEs were not likely engage in ICT applications as compared to other SMEs. Hagsten and Kotnik (2017) did not reveal the method of sampling used to come up with the sampled population. The current study administered various sampling methods such as simple random sampling methods to sample SMEs.

International Trade Center [ITC] (2018) documented the competitiveness of SMEs in getting into markets in the digital era ecosystems. ITC (2018) explored how changes in technology had impacted various functions of SMEs such as how they connected with suppliers, buyers, financial institutions and the government entities. SMEs were now relying mostly on digital platforms and less paper work to track their exports and imports. In addition, SMEs were supplying goods and services through online transactions and money was transferred through incorporated mobile phone applications. However, ITC (2018) revealed that SMEs had always battled the issue of poor access to reliable internet connection and telecommunications infrastructure even in developed nations such as Europe, hence making it almost impossible to access and venture into both old and new markets. This gave the study the need to examine the ICT challenges SMEs in Trans Nzoia County were facing.

A report by United Nations Conference on Trade and Development [UNCTAD] (2019) reviewed the value created in SMEs in developing countries as a result of engaging in digital economy to access markets. The report revealed that some of the digital milestones in SMEs done included block chain technologies; 3D printing; internet; 5G mobile phone broadband; cloud computing; robotics and artificial intelligence; E-

commerce platforms like Caterpillar, Ikea, Zara, UBS (e-banking), Amazon, Alibaba, eBay, and Jumia; and computer applications like google play apps like emails. UNCTAD (2019) reported that measuring digital economy was a problem. This was because governments were unable to get information related to SMEs that were purely digitalized without a physical location. For example, there were SMEs that sold their products online without any physical entity. Lack of this information made it hard to allocate annual budget to these specific kinds of SMEs. Lack of budget allocation created a problem to access subsidized loans and grants for the business hence making it hard to initiate marketing strategies in the new and old markets.

In Nigeria, Gbadegeshin et al. (2018) investigated how SMEs incorporated and applied ICT in their operations internationalization. The study applied mixed methods research design to collect data from 265 respondents such as owners, managers and other staffs through questionnaires. Interview method was used to collect data from 7 decision makers. Gbadegeshin et al. (2018) found out that SMEs mainly used social media platforms and websites applications in their operations. It was also noted that the study established that SMEs usage of social media platforms and websites applications was not affected by challenges of ICT such as cyber insecurity, unreliable internet, and privacy issues. These results were objected by Nyakundi (2018) who indicated that SMEs in African nations got mostly affected by unreliable internet issues due to limited telecommunications infrastructure as compared to developed nations. These issues inhibited SMEs to actively compete with international SMEs towards creating a niche in the accessed markets. Gbadegeshin et al. (2018) did not include owners of business as part of decision makers hence contradicted the definition given on the role of a decision maker in an SMEs.

In Somalia, Abdullahi et al. (2021) evaluated factors influencing agricultural SMEs in Somalia to adopt ICT. The study used online survey to gather data from 107 respondents who had agricultural SMEs and farmers. Abdullahi et al. (2021) revealed that comparative gain, sophistication, top management backing, and competition from other SMEs who had already adopted ICT were great motivators to adopt ICT. Some of the ICT applications used in Somalia SMEs were e-procurement, e-commerce, enterprise systems and Electronic Data Interchange [EDI]. Notably, financial gains and external backing were not indicated as motivators by SMEs in Somalia. Abdullahi et al. (2021) concentrated on SMEs companies that deal with agricultural operations and not including SMEs such as forex SMEs, manufacturing SMEs, and wood-related SMEs among others in their study.

In Kenya, Gitonga (2021) assessed how SMEs in Nyeri had been adopting technology to operate E-procurement so as to get buyers and suppliers in Kenyan market. The study worked with 105 sampled SMEs owners who came from large traders, shops, retails; medium workshops/service/repair; small industrial plants; and medium financial services sectors. Gitonga (2021) identified that SMEs failed to fully engage in e-procurement due to cyber-security issues; lack of ICT; unavailability of reliable e-procurement applications; discouraging support systems whereby there was mismatch between the needs of SMEs and those of stakeholders. These limitations caused SMEs to be termed as a joke by potential clients who tried to transact with the SMEs and high number of losses from exited clients. Gitonga (2021) did not investigate other SMEs sectors such as hotel industry. In addition, though the study indicated that pre-testing was done by giving five pre-test questionnaires, it did not substantiate to whom the five pre-test questionnaires were given and the sampling method used to come up with the five pre-tests.

Osano (2019) examined the strategies applied by Kenyan SMEs to expand to international markets. The study used a random sample of 205 manufacturing firms in Nairobi. Osano (2019) surveyed senior management of the 205 firms but 175 actually took part in the study. The study found out that marketing and supplying of products to international markets such as North America, Europe and Asia was engulfed with problems such as non-tariff barriers such as very high-quality standards, high labor standards and limited access to distribution channels. Additionally, SMEs were challenged in ensuring that they satisfied domestic investor hopes of short-term profits forecasts before going international which had become an issue. Osano (2019) therefore, suggested that SMEs could use marketing mix systems whereby there was an ICT system of tracking various stages of the products issued and government assistance in having international trade negotiation with global markets. Osano (2019) study included only the manufacturing SMEs in the study and did not include SMEs in other industries such as food, processing, wholesale and retail. The current study included all categories of SMEs in Trans Nzoia County.

2.3 Data Management and Market Access by SMEs

Data management was the ability of an SME to store, organize, maintain in its original form, and quickly retrieve information when needed (Qalati et al., 2021; Statista, 2018; United Nations Conference on Trade and Development [UNCTD], 2019). Data management enabled an SME ensure that information was not lost, forgotten or destroyed in the course of its operations. Data management was mainly indicated by accounting systems, inventory control systems, marketing technology systems, customer relationship management system, analytics systems, business intelligence systems (Awinja & Fatoki, 2021; Dethine et al., 2020). Managing data was a continuous activity that was ever changing. In current era, SMEs had greatly advanced their data

management skills through incorporation of ICT and hence abandoning the traditional ways of managing data (Yuldinawatia et al., 2018). Therefore, for an SME to be categorized as one that effectively managed data, the data itself was to be easily accessible, reliable, and in its original form (Kabanda & Brown, 2017; Mosweu et al., 2016; Yuldinawatia et al., 2018). Studies had at length explained the role that data management played towards enabling SMEs access both regional, local and international markets.

Mäki and Toivol (2021) examined how Finnish SMEs companies expanded their e-commerce to global perspectives. The study examined 20 Finnish SMEs that had goals of extending their e-commerce to international markets. Using mixed method research design, the study discovered that prior experience in internal markets was relevant; foreign language incorporation to their ICT applications; and proper analysis of the new market was needed when venturing new international markets. To conduct proper analysis, SMEs needed to have reliable risk assessment systems, enough ICT storage capacities to store large market information; inventory control systems such as first in first out [FIFO], last in first out [LIFO] and Last in last out [LILO]; and availability of resource to manage and act on information related to finances, products, regulations and policies.

Further on, Dethine et al. (2020) investigated digitalization implementation in export management by the SMEs. The study complained that SMEs struggled a lot when adopting various digitalization in their operations such as budgetary allocations to the ICT infrastructure, changes of firm's strategies; and incorporation of raw data into the computerized systems. Dethine et al. (2020) used secondary data from reports and studies to explore on three areas which were e-commerce, e-marketing and e-business. The study found out that when SMEs were changing to become digitalized,

management of export supplies, global customers and employees' information was a challenge. This was because information was produced and interpreted differently by diverse stakeholders. For example, quantities level of goods varies depending on the international market the SME was engaged in. Nevertheless, the choice of secondary data utilization in the study could mislead the study especially if the reviewed studies were biased in their findings.

Lee and Falahat (2019) evaluated the effects of digitalization on acquiring competitive advantage in global markets by SMEs in Malaysia. The study collected data from 143 manufacturing SMEs. Lee and Falahat (2019) found out that digitalization did not have a direct effect on competitive advantage but rather on goods and services produced. This meant that though digitalization did not make an SME competitive but rather by improving goods and services produced. These improved goods and services were what gave an SME competitive advantage. According to Lee and Falahat (2019), digitalization enabled the SMEs store, process, and retrieve information on products and services at a click of a button. Lee and Falahat (2019) evaluated more on digitalization on manufacturing SMEs that engaged in international markets. The current study examined SMEs in all sectors and how digitalization had enabled them access both local and international markets. In addition, Lee and Falahat (2019) did not explain the sampling procedure used on SME but only gave the target population. The current study gave both the target population and sampled population of the study.

Further on, Grochal-Brejdak and Szymura-Tyc (2018) explored the globalization process of an organization that had e-commerce function in its processes. The study explained that e-commerce was a digitalization application that allowed SMEs to advertise their goods and services; permits clients to place orders for quantities of goods, pay for the goods and services, and give feedbacks on the satisfaction levels of

these goods and services according to their needs. Grochal-Brejdak and Szymura-Tyc (2018) argued that when an SME wanted to globalize its operations or access international markets, it was a very long journey. International markets required prior planning on how to supply large quantities of orders through inventory control systems like ERP system; paying and receiving many transactions hence the need for reliable accounting systems like QuickBooks; and constant marketing of goods and services through websites, social media, media platforms like televisions and radios, and advertisement agents.

This could only be achieved through having competitive marketing systems such as e-commerce. This was because according to Grochal-Brejdak and Szymura-Tyc (2018), when SMEs had experience in operating on online platforms, it improved their chance to excel into the international markets as compared to SMEs that do not. In agreement, Paul and Rosado-Serrano (2019) compared the success rate of business ventures initiated as global firms and those that began as local firms and later on advance to international markets. The study confirmed that local firms who advanced their operations to international markets excelled more in international markets.

In Indonesia, Yuldinawatia et al. (2018) explored the influence of internet usage and SMEs performance. The study used Telcom Community Development Center [TCDC] since Telcom was the only telecommunication company offering internet and communication services. Yuldinawatia et al. (2018) used 32 SMEs owners who were recent members of TCDC between January to April 2014 were invited into focused group discussion. It was established that many SMEs owners did not have formal skills to utilize various internet facilities such as cloud storage among others. This meant that they hardly maintained business information for a long time. According to

Yuldinawatia et al. (2018), failure for SMEs to hardly have prior information on goods, clients and also market analysis, resulted to limited access to new markets.

For example, it was hard for SMEs to give a history of production of their goods or services; previous prices analysis to defend their need for current prices in the new markets; and prior clients that the SMEs had sold their goods and services, so as to act as point of reference to the potential customers. According to Yuldinawatia et al. (2018), from the 32 SMEs owners, 22 owners were SMEs involved in trading of goods; 6 SMEs owners offered diverse services; 3 SMEs owners were involved in industrial field and 1 was an SME owner related to plantation. From this information, SMEs related to food sector were not included in the study. Yuldinawatia et al. (2018) used only 32 SMEs owners who were newly registered between the months of January and April 2014 and did not explain the reason for eliminating other SMEs owners who had registered earlier of later. This led to the study having a very small sample that was just above 2 from the 30-sample population verge. The current study explored more on the number of SMEs in Trans Nzoia County.

In India, Kaushik et al. (2020) revealed the reasons behind high success rates of online fashion retailers. The study sampled 40 successful online fashion retailers in India. The retailer who answered an online survey indicated that they were able to sort out various clothing products they had made and posted the most appealing through online platforms like social media and websites. According to Kaushik et al. (2020), online retail had been working since they were able to apply various systems such as accounting and marketing systems to balance between input to the business and the profits generated. If the profit margin was desirable to their set targets, they easily changed to customer preferences on various fashion designs. In addition, average prices and good reputation on the online retails were improving their ability to penetrate more

into their old markets and also venture into new ones. Kaushik et al. (2020) concentrated more on fashion retailers specifically on clothes but did not investigate other online fashion retailers like shoes linked retailers and cosmetics retailers.

In South Africa, Bvuma and Marnewick (2021) explored the contribution of small, medium, and micro enterprises [SMMEs] growth towards sustainability in Soweto Township. Being a qualitative exploratory type of research, the study used a sample of 21 sampled SMEs managers/owners. They were interviewed and observed to establish some of the challenges SMMEs in township face regarding to ICT adoption. Bvuma and Marnewick (2021) discovered that low skills, low cognizant, unavailable infrastructure and high costs on ICT installation and operation had severely affected SMMEs in Soweto. The SMMEs were established that they used old data management methods such as writing down sales and purchases in a book; relying so much on one person's memory mostly the owner of SMME to know the stocks level; consultation with friends and relatives to establish how the market competition was faring. These methods resulted to massive loss of data, resources and access to even larger market opportunities to SMMEs resulting to unsustainability. Bvuma and Marnewick (2021) study findings were based on responses given by SMMEs managers/owners but not any other respondents such as SMMEs stakeholders like other SMMEs staff and suppliers. Therefore, the current study ventured into assessing the current situation on ICT adoption by SMEs in Trans Nzoia County while taking into consideration diverse opinions of stakeholders such as managers, and SMEs staff. In addition, Bvuma and Marnewick (2021) used a sample of 21 sampled SMEs managers/owners which would be very hard to validate its results. Therefore, the current study used a sampling frame which was above the 30.

In Kenya, Awinja and Fatoki (2021) espoused on online financial services as a causal agent to growth in Nairobi SMEs. Initially the study sampled 300 SMEs which were selected through random sampling method. The respondents who were SMEs owners answered an online monkey survey and other online forms were created due to covid-19 regulations. Awinja and Fatoki (2021) identified mobile banking as the most preferred method of payments to SMEs. This was because; the SMEs acknowledged it as secure, easy and maintained records of transactions that would be used in filing for taxes. According to Awinja and Fatoki (2021), mobile companies such as Safaricom sent them a monthly email of transactions every first week of the month free of charge. These enabled SMEs reconcile various discrepancies on their business records. Having reliable transactional records enabled the SMEs access various government loans with low interest rates hence able to venture into various regional, national, and international markets. Awinja and Fatoki (2021) did not indicate where, why, and how the pre-testing of the study's instruments was conducted. In addition, the sampling methods used to select the pre-test samples were not given. Awinja and Fatoki (2021) did not explore how the SMEs were managing payments on other digital financial services like POS and how that had influenced the growth of SMEs in their markets.

Baariu et al. (2021) investigated the influence of competitive strategy drivers to performance of SMEs in manufacturing sector in Nairobi. Cross-sectional survey was conducted on 334 SMEs in manufacturing sector. Baariu et al. (2021) unveiled that many SMEs had built brand loyalty on their customers hence ensuring that other competing SMEs had a run for their money when trying to access their respective market segments. Maintenance of brand loyalty on their customers involved relying on computerized systems like customer relationship management systems and analytics systems to give reliable services. Therefore, since Baariu et al. (2021) assessed

manufacturing related SMEs, there was need to assess how other SMEs such as processing, assembly and food related SMEs were stiffly competing with other SMEs to ensure that they protected their markets.

Kawira (2021) evaluated how entrepreneurial marketing affected MSMEs' performance in Tharaka Nithi. The study sampled 368 MSME's owners using stratified sampling and simple random methods. The questionnaires were hand delivered to the respondents. According to Kawira (2021), online marketing methods through Facebook, twitter, Instagram, websites, telephone calls and WhatsApp improved SMEs performances. In addition, keeping correct details of clients' feedback, goods and services information, dates of transactions would enable SMEs generate useful information to facilitate decision making. Generation of this information would be done through various systems like analytics systems, business intelligence systems, and inventory control systems. Kawira (2021) concentrated on MSMEs in Tharaka Nithi. Therefore, the current study widened the scope to incorporate SMEs in Trans Nzoia County.

2.4 Social Media Management and Market Access by SMEs

Social media management was the ability of an SME to creating, disseminating, sharing and monitoring and engaging in online conversations on posts, photos, and videos that related and promoted the operations of the SME (Knight Frank, 2020; Lee & Falahat, 2019). SMEs engaged heavily on social media platforms since it was cheap, convenient and less tedious to the organization (British Business Bank [BBB], 2019). Social media management in an SME was indicated by media content created, monitored online conversations, number of contracts signed on partnership with various influencers, customer care functions, connections made and data analyzed in line with SMEs'

objectives (Grochal-Brejdak & Szymura-Tyc, 2018). In line with these thoughts, it was precise to indicate that effective social media management included high number of likes, comments and re-sharing of posts, photos, and videos uploaded; improved sales; low turn-around time on customer feedback; high number of meaningful posts, photos and videos per day/month (Brandão et al., 2019; Cheng & Shiu, 2019; Maduku et al., 2016). Studies had at length explained the role that social media management played towards enabling SMEs access both regional, local and international markets.

Dwivedi et al. (2021) conducted a systematic review on implementation of social media and its effect on Business-To-Business (B2B) companies. While reviewing various literature, the study covered on social media tools, uses, challenges, stratagems and efficacies towards improvement of business. Dwivedi et al. (2021) proclaimed that use of social media by B2B companies relied on how easy it was to navigate through the features of the platforms, attitude and age group of the users. Dwivedi et al. (2021) further expressed that for a company to attract clients, they needed to ensure that their social media platforms were attractive whereby they inquired new opinions on current local and international market updates; showed the social media users how the company have been contributing towards the society; and provided funny comments and animations to explain about their goods and services in a humorous way.

In addition, Dwivedi et al. (2021) indicated that social media platforms gave information concerning the firm staff; provided direct contact information on how potential local and international clients could reach to them; ensure the customer feedbacks were handled immediately; and remember to always create promotions on the goods and services through prizes and rewards. These factors when implemented boosted the access chances to markets. Nevertheless, Dwivedi et al. (2021) did not

address the contribution of influencers on marketing their goods and services in social media and how that affected more access to new markets.

Further on, Brandão et al. (2019) conducted an analysis on the relationship between social media use by SMEs in Portuguese and foreign market entry. The study used secondary data from peer reviewed journals and interviews 6 Portuguese SMEs in form of medium companies. According to Brandão et al. (2019), SMEs that engaged their social media clients through emotionally and not rationally; spreading goods and services information through social media pop-ups; know how to balance between local and international client demands; and always linking various trending news with their firm's objectives in blogs, could be able to access and excel in foreign markets. In addition, Brandão et al. (2019), did not indicate the number of reviewed journals in the secondary data review. Also, 6 SMEs interview population was not substantiated on how the authors came about it.

However, Brandão et al. (2019) complained that social media management was experiencing challenges in getting staff that had the passion to engage clients emotionally and how to link the SMEs objectives with what was happening in the news. In addition, financial resources were also a challenge especially when social media management did not translate to new clients or more goods and services demands. Brandão et al. (2019) did a study on medium companies but did not include other types of SMEs such as wholesalers and retailers in their study.

Further on, Cheng and Shiu (2019) explored the effects of incorporating social media and social customer relationship management [CRM] to improve customer involvement in China. 976 SMEs were sampled based on their ability to have involved customers through social media platforms in the past 3 years. According to Cheng and

Shiu (2019), customer involvement in utilizing web-based media decidedly affected SME development performance. This was because, they felt wanted and appreciated to a point they purchased more goods and services, and preferably gave more referral to the SMEs. This could be one of the ways of accessing and penetrating new markets. In addition, SMEs who utilized Social CRM and had web-based media network/client data preparing capacities improved the adequacy of client association utilizing online media. Hypothetical and administrative ramifications of these discoveries were examined beneath. However, the study centered mainly around the investigation of customer involvement in utilizing web-based media but failed to include particular phase of the advancement improvement measure. For instance, client contribution in the launch phase of the new product improvement measure by utilizing Social CRM.

Arianty (2019) examined the influence of usage of social media on SMEs development in Percut Sei Tuan Deli Serdang Utara in Indonesia. Working on a sample of 65 SMEs, the result discovered that social media had a way of enhancing customer relationship management and market access which promoted the development of SMEs. That was, when SMEs maintained good relationship with their old, new and potential customers, there was easy access to markets hence growth of SMEs. Customer relationship was enhanced when SMEs shared types and colors of various goods, working on improvements once customers gave negative feedbacks; and keeping customer records in the databases. Arianty (2019) disclosed that the study used 'probability sampling method' to sample SMEs owners, but did not specify and substantiate which type of probability sampling method was used. Therefore, the current study used simple random sampling method to sample SMEs in different sectors.

Qalati et al. (2021) examined how Pakistan SMEs performance was influenced by social media implementation. The study adopted closed-ended questionnaires sent to a

sample of 650 respondents through survey monkey due covid-19 pandemic. The response rate was 423 responses. According to Qalati et al. (2021), 311(75.30%) of the respondents indicated that they majorly relied on social media to run the SMEs operations such as sales and marketing. The outcome indicated that indeed SMEs performances had greatly improved and costs reduced. The study further revealed that the SMEs owners were able to manage social media through partnering with influencers such as models and musicians to promote their goods and services; making new connections through liking various social pages whereby they would advertise their goods and services online for free to a high number of group members; and always being prompt when clients request for information on goods and services.

Qalati et al. (2021) acknowledged that access to markets had greatly changed since social media has made it possible to penetrate both local and international market without necessarily incurring a lot of travelling expenses to meet with new customers. Nevertheless, Qalati et al. (2021) lamented that social media had become an easy target for online theft and also many jokers who necessarily did not have any intention of buying but just wanted to know the prices to critique the goods and services. Qalati et al. (2021) indicated that the pre-testing population was also the respondents and target population that took part in the study. This meant that there was a likelihood that the study instruments had errors that would have been avoided through pre-testing with another pre-test population. In addition, answering of the Qalati et al. (2021) survey monkey was cumbersome to respondents as compared to use of other easy online data collection instruments such as a Google form. The current would use online data collection instruments such as Google form when paper questionnaires will be rejected due to covid-19 pandemic.

In Malysia, Nawi et al. (2019) investigated the contributory factors that pushed student entrepreneurs to utilize social media platforms to advertise their SMEs. Using a cross-sectional design, the study sampled 300 students registered in the public universities' entrepreneurship centers. Nawi et al. (2019) found out that performance expectancy, perceived trust, perceived enjoyment and perceived risk contribute a lot to use of social media platforms. These social media platforms created avenues to venture to local markets and some had gone to the extent of accessing international markets through selling of goods and services to their counterpart students in international universities. This enabled them make connections through the use of social media. Nawi et al. (2019) did not consider including students from private universities in their study.

In South Africa, Oji et al. (2017) while focusing on Cape Metropole restaurants examined the challenges, they were facing in social media adoption. The study sampled 100 restaurants to take part but 94 of them answered the self-administered questionnaires. Oji et al. (2017) found out that the elements that limited SMEs from fully using social media sites included lack of ICT infrastructure, low knowledge on various social media sites and how the SMEs could use them to their advantage; and low motivation to venture into social media. These limitations had discouraged the SMEs into venturing deeper into new markets.

Oji et al. (2017) indicated (page 5 of the journal under sampling technique section) that they used simple random sampling method to derive to a sample the 100 restaurants since there was no list of restaurants in Cape Metropole. However, this could be challenged on the grounds that the list could be generated from Ward administration licensing department in Cape Metropole at request. Therefore, since the study did not have a clear target population, the study could be termed as misleading and biased. The study also specifically concentrated on only three social media platforms such as

Facebook, Twitter and WhatsApp but failed to include other like you tube and Instagram.

In Kenya, Wanyoike and Kithae (2019) assessed the relationship of social media networks and Nairobi SMEs performance in international markets. The study used a sample of 84 respondents who had SMEs in Kamkunji area in Nairobi. They were issued with questionnaires and 72 of them participated in the study. Wanyoike and Kithae (2019) established that social media platforms such as Facebook, WhatsApp and you tube were mainly used in improving customer relations in international markets. The social media networks enabled SMEs enhance their procurement choice cycle, promoted client bonding events and encouraging inclusion of new clients and retaining the old clients. The study included Beauty shops and boutiques, Electronics and accessories, Kitchen utensils, General merchandise, Shoes and footwears and Catering firms type of SMEs. The study did not include manufacturing SMEs, processing SMEs and assembly SMEs. In addition, Wanyoike and Kithae (2019) focused more on SMEs performance on access of international markets while the current study mainly focused on access to both local and international markets.

In addition, Rumo and Ndiege (2019) examined the strategic positioning of SMEs through use of social media. The study adopted an exploratory type of research to conduct semi structured interviews to 15 SMEs owners. The study revealed that the SMEs had not fully adopted use of technology which was limiting their exploitation of social media technology. Further on, the ever-changing customers' needs and high competition in the social media platforms had made it almost impossible to manage social media expectations. The study used a very small number of main respondents. The number of the main respondents who were 15 SMEs owners interviewed in this

study was very small hence the results could be extrapolated. Therefore, the current study interviewed a higher number as compared to Rumo and Ndiege (2019).

2.5 Cyber security and Market Access by SMEs

Cyber security was the practice of defending systems, networks, and programs from online attacks (European Commission [EC], 2020; Hagsten & Kotnik, 2017). In addition, it was the venture of always ensuring that malicious individuals did not access, use or manipulate the SMEs operations to fit their selfish needs. Cyber security was an emerging practice that ensured that factors such as end-point security, malware such as viruses, network security, cloud security, ICT applications security and internet security were closely monitored for any abnormalities (Apau and Koramteng, 2019; Asgary et al., 2020; Muhati, 2018). Further on, an effective secured system ought to have restrictions of access such as use of passwords; perform the intended functions such as eliminating any internal or external threats; and maintain privacy of data (World Bank, 2020). Studies had at length explained the role that cybersecurity play towards enabling SMEs access both regional, local and international markets.

Asgary et al. (2020) assessed the global risks that Turkey's manufacturing SMEs experience and how they evaluated them. The study used online survey to gather data from 132 sampled manufacturing SMEs. 60 percent of the sampled SMEs were discovered to be involved in exportation of goods business to European nations. Asgary et al. (2020) found out that SMEs evaluated global risks through calculating their impacts and thereafter generating risk matrix from the calculated risk impact values. According to Asgary et al. (2020) cyber theft such as hacking and information fraud were considered higher global risks than any other kinds of technological risk such as network breakdown. When information was stolen, SMEs lost key contacts and product

information that was normally used as security in defending and marketing their existence in the market. When clients discovered that there was an incidence of information fraud, they tended to avoid any more business transactions with these SMEs. Loss of clientele often translated to poor access to current market and very slim chance of new markets access (Asgary et al., 2020). The study only considered manufacturing SMEs and did not investigate other types of SMEs such as automobile, wholesale and retail, and processing SMEs. In addition, Asgary et al. (2020) did not consider other types of technological risks such as insider risks and privacy concerns.

European Commission [EC] (2020b) highlighted some of the policies that EC had enacted on cyber security in Europe. According to the report, there was a program known as Digital Europe Program [DEP] that began in 2021 and would run till 2027. EC (2020b) indicated that it would invest 1.9 billion euros to boost its infrastructure, competent staff to secure cyber security in companies and individuals. DEP was supposed to work with European cyber security industrial, technology and research competence center and a network of national coordination centers to ensure they kept on researching and renewing the much-needed cyber security measures.

According to EC (2020b), 5G internet was deployed in various government offices, companies and SMEs. In SMEs, the secure 5G entailed improving access to online markets and reliable communications between them and their clients. The departments of migration and foreign affairs, European cybercrime center was given the enforcement rights to ensure that the users of 5G internet abided by EC laws. The report further indicated that there were cases whereby SMEs engaged with international markets through unsecure internet. This resulted to leakage on end-point security causing massive loss of information and money. EC (2020b) also emphasized the importance of women inclusion in the cyber security team. Their names were listed in

Women4cyber registry to ensure that companies and SMEs got access to their services for a fee. This was because, it was very hard to see a woman in cybersecurity teams hence the registry provided a platform for them to be known and their services consulted giving them access to international and local European markets.

World Bank (2020) explored the cyber security structures used by SMEs when dealing with digital financing methods. The report indicated that SMEs were now thoroughly screening their clients through big data analytics to ensure that they minimized any form of client related risks that would inhibit them from accessing markets; mobile phone payment methods to facilitate safe and accountable method of all their transactions for filling of taxes; digital identity systems whereby clients needed to input their user names and password before accessing their accounts on SMEs products; and Application Programming Interfaces [APIs] which enabled SMEs share any lending clients with financial institutions to assess their credit status. For example, in Kenya, there was the Credit Reference Bureau [CRB] system that ensured loan defaulters were not issued with any future credit such as SMEs goods of credit. However, World Bank (2020) expressed disappointments in that SMEs staff had very low skills and knowledge to handle cybersecurity issues; unreliable internet to continuously monitor the SMEs websites and networks for cyber threats that could affect performance of SMEs in the markets; and lack of data privacy among SMEs.

OECD (2019) documented on South Asian SMEs connection through digitalization. The report indicated that SMEs were the greatest contributors to the economy of Asia. Venturing into digitalization and innovations had even placed them at a better position to expand and access the interior market segments that were not previously possible to reach. Digitalization had impacted greatly how they market, supply and receive payments from their clients. However, digitalization had its share of negative

experiences related to cyber security aspects. According to OECD (2019), when digital security was bleached, data was prone to be exposed to unauthorized people who used the information to manipulate the SMEs operations. When this happened, customer trust was lost, damaging reputation and subsidized revenues. It took a long time to actually get back to normal business operations since ICT bleach was more like the heart of many SMEs in South Asia.

In Lao PDR Leebouapao et al. (2020) examined the development rate of E-commerce platforms among businesses. According to the report, banking account ownership and internet users had improved. Leebouapao et al. (2020) however complained that E-commerce platforms such as payment methods were highly insecure; insufficient laws enacted to protect theft of data and cyber-crime which discouraged international clients from engaging business with local SMEs; and the postal system did not have an efficient data collection system for households, which impeded delivery of SMEs goods to clients. The current study advanced further this knowledge by examining how SMEs in Trans Nzoia were utilizing e-commerce application to access markets.

In Ghana, Apau and Koramteng (2019) explored the effect that cybercrime has on e-commerce social media users across the economy. The study applied the survey approach to include 476 users of social media were sampled using partial least square structural equation modelling. The questionnaires were sent online with the link being dispersed in social media platforms. Apau and Koramteng (2019) found out that attitudes and future intention to purchase goods through e-commerce platforms were negatively hampered when they were victims of cybercrime. This was because, the customers felt so insecure to trust the SMEs that were parent-origin of the e-commerce platforms. In short, SMEs lost clients and probably earned a bad reputation making it impossible to ever access that market again. For example, if the user of e-commerce

was a student in a university, there were chances that the whole university would avoid purchasing that specific SMS' goods and services to avoid losing money. Apau and Koramteng (2019) did not indicate any evidence of pre-testing the study's questionnaires. In addition, the study only concentrated on e-commerce ICT application and did not examine other ICT application such as users who make purchases via SMEs websites.

Serianu (2019) reported on data protection and privacy laws in African SMEs specifically in Uganda. According to the report, cyber security awareness had been on the rise in many African nations. This was because cyber issues affected many SMEs to a point of some closing down their operations due to inability to operate and access more clients in the market. It was discovered that many SMEs were relying on traditional risk management techniques which were proving to be futile as time progresses. For example, In Uganda, cyber cases such as unauthorized access were 27 in 2019 an increase from only 10 in 2018. In addition, there were mobile card sim fraudulent swap; and malwares such as botnets viruses, ransomware, and crypto jacking. Serianu (2019) advised SMEs to always update their operating systems, purchase reliable anti-viruses; and have browser extension that protected SMEs from hackers' access to CPU that stored clients, goods and service information for continued access to various markets.

Muhati (2018) examined what influenced cyber security in SMEs in Kenya. This study sampled 384 SMEs. These SMEs were from wholesale and retail trade; repair of motor vehicles and motorcycles, manufacturing, accommodation and food service industry. The response rate was 259 from the SMEs. Muhati (2018) revealed that cybersecurity improved efficiency due to reduction in hacking; data preservation; low interruptions in the systems; improved confidence level by customers; growth of business; and higher

quality of service. However, cyber security was greatly challenged by limited finances due to low budgetary allocation, low awareness on cloud storage systems, privacy issues, viruses, and irreconcilability with current ICT applications systems. These challenges were making it difficult for SMEs to expand more on already accessed markets and as well as new ones. Though Muhati (2018) tried to include all categories of SMEs, the study failed to include processing industries as type of SMEs.

Ndeda and Odoyo (2019) investigated various cyber threats and security in businesses in Kenya. Relying on secondary data from studies done on cyber security, the study adopted qualitive research methods. The types of cyber threats affecting many businesses included insider risk, social media, digital and mobile banking theft, mobile money risk, and denial of service [DoS] risk (website attack and network attacks among others). A cyberthreat such DoS completely paralyzed the operations of an SME. When hackers hacked SME website and networks, it led to massive loss of clients and hence making it very hard ever access new markets be it local or global ones.

This was because the old customers lacked confidence in the SMEs systems whereas bad reputation did no good to new potential clients. To counter these cyber threats, Ndeda and Odoyo (2019) indicated that regular training to staff to identify social media threats and insider risks; continuous monitoring and use of firewalls to counter DoS risks; and introduction of passwords and user names to curb digital and mobile banking theft, would be relevant to SMEs and other businesses. In line with these thoughts, there was need to investigate some of the cyber threats that SMEs faced in due course of accessing markets.

African Economic Research Consortium [AERC] (2019) reported the revolution in Kenyan businesses brought about by digital revolution in M-Pesa. The report

documented that M-Pesa enabled clients deposit cash, withdraw money, buy airtime, pay various bills such as electricity, water, internet and house rents. AERC (2019) indicated that for M-Pesa to be approved by the Central Bank of Kenya [CBK], the e-money had to be backed with real money at a trusted commercial bank. This was to safeguard the public money in the M-Pesa system. Therefore, since many SMEs rely excessively on M-Pesa for safe monetary transaction, it was of paramount to acknowledge the types of risks associated with the system.

According to AERC (2019), M-Pesa was prone to legal risks, operation risks, money laundering risks, M-Pesa system hacking risk, credit risks, terrorism financing through M-Pesa risk, and systemic risks. In relation to cyber risks, Safaricom which owned M-Pesa ensured that one did not perform any transaction without inputting the four numerical passwords; reliable customer services to report any fraudulent activities on one's phone; a limit of Kshs300,000 transaction value per day to limit money laundering through the system; a reversal of the transaction option when one sends money to a wrong recipient; options to change or block one sim card in case the phone is lost or stolen; monthly M-Pesa statements to clients to show the name of transactions and their value; and registration requirements of using national identification details when registering for M-Pesa line for both M-Pesa agents and sim card line for other customers. All these measures enabled SMEs not have doubts when making payments or receiving payments from different clients. This confidence boosted the psych to access new markets since they knew there was a convenient and secure method of operating transactional operations.

2.6 Research Gaps

From the past studies investigated on ICT applications, it was established that measuring digital economy was a problem. This was because governments were unable to get information related to SMEs that were purely digitalized without a physical location. Lack of this information made it hard to allocate annual government budgets for access to subsidized loans and grants for the business. This made it hard to initiate marketing strategies in the markets. These marketing strategies were very important in enabling digital SMEs to manage business models scaling in online environments. In addition, SMEs were battling with poor access to reliable internet connection and telecommunications infrastructure even in developed nations let alone developing ones hence could not avoid failures in their operations. Lastly, SMEs also failed to fully engage in e-procurement due to cybersecurity issues; lack of ICT; unavailability of reliable e-procurement applications.

On data management, the study found out that when SMEs were changing to become digitalized, management of export supplies, global customers and employees' information is a challenge. This was because information was produced and interpreted differently by diverse stakeholders. In addition, it was established that many SMEs owners did not have formal skills to utilize various internet facilities such as cloud storage among others. This meant that they hardly maintained various businesses information for long. According to the studies, failure for SMEs to hardly have prior information on goods, clients and also market analysis, resulted to limited access to new markets. The SMMEs were established that they used old data management methods such as writing down sales and purchases in a book; relying so much on one person's memory mostly the owner of SMME to know the stocks level; consultation with friends and relatives to establish how the market competition was faring. These

methods resulted to massive loss of data, resources and access to even larger market opportunities to SMMEs resulting to unsustainability.

On social media management, studies reviewed complained that social media management was experiencing challenges in getting staff that had the passion to engage clients emotionally and how to link the SMEs objectives with what was happening in the news. In addition, financial resources were also a challenge especially when social media management did not translate to new clients or more goods and services demands. Further issues pertaining to social media becoming an easy target for online theft, lack of ICT infrastructure, low knowledge on various social media sites, how the SMEs could use them to their advantage; and low motivation to venture into social media. These limitations had discouraged the SMEs into venturing deeper into new markets.

Lastly, on cyber security variable, studies proclaimed that some of the cyber threats that SMEs faced included insider risk, social media, digital and mobile banking theft, mobile money risk, and denial of service [DoS] risk. In as much as many SMEs were trying to curb these threats, cyber security was greatly challenged by limited finances due to low budgetary allocation, low awareness on cloud storage systems, privacy issues, viruses, and irreconcilability with current ICT applications systems. These challenges were making it difficult for SMEs to expand more on already accessed markets and as well as new ones. Further on, cyber theft such as hacking and information fraud was considered higher global risks than any other kinds of technological risk such as network breakdown. When information was stolen, SMEs lost key contacts and product information that was normally used as security in defending and marketing their existence in the market. When clients discovered that there was an incidence of information fraud, they tended to really avoid any more

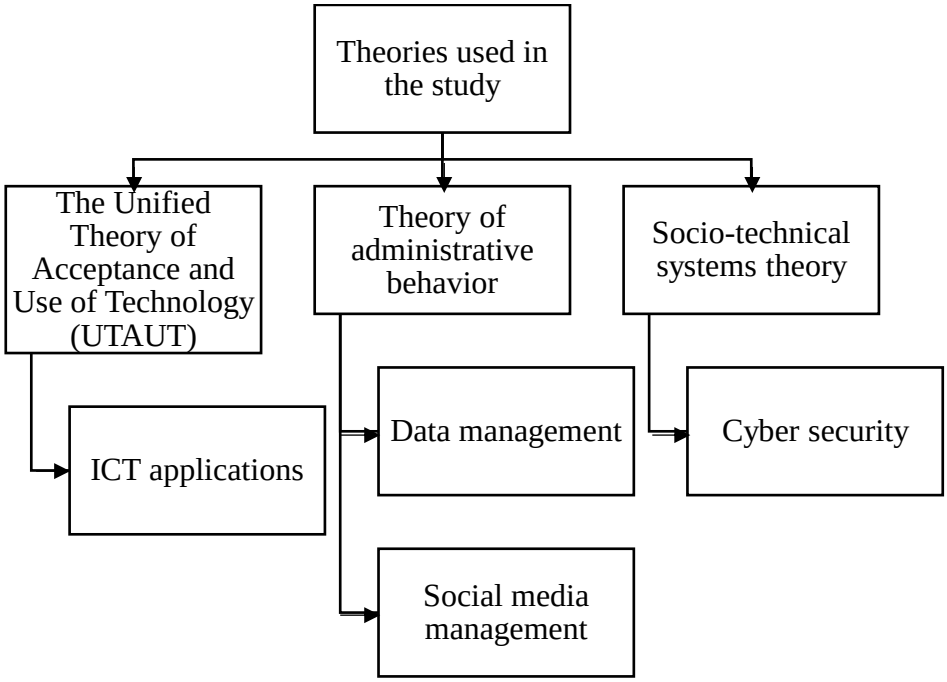
business transactions with these SMEs. Loss of clientele often translated to poor access to current market and very slim chance of new markets access.

2.7 Theoretical Framework

The study was guided by three theories. The Unified Theory of Acceptance and Use of Technology (UTAUT) guided ICT applications variable. Theory of administrative behavior guided data management and social media management variables. Socio-technical systems theory, guided cyber security variable of the study. Section 2.5.1 to 2.5.3 explains these theories.

Figure 2.1

Theoretical framework



2.7.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) was developed by Venkatesh (2003). UTAUT stated that for an ICT system to be successful, the intent to use and pattern of usage behavior ought to be well known. This knowledge could be

acknowledged when factors such as performance expectation, effort expectation, social influence and facilitating circumstances on the ICT system are noted. Performance expectation on the ICT system could be communicated to all intended users of the system. The personal effort that each user applied towards ensuring they had interacted with the ICT system in making organizational operations simpler and faster. Social influence of the ICT system could enable the organization assess whether it made the staff interact more often or had separated the interactions. Facilitating circumstances such as training, budgetary allocation on the intended ICT system should also be noted. These four factors enabled an organization's management examine whether the implemented ICT system had worked well or not.

UTAUT was used to explain the ICT applications variable in the study because as SMEs were expanding, so had their interactions with ICT. Technological changes were happening abruptly as Information Technology [IT] firms were inventing various ICT applications. As SMEs grew, their operations activities such as communication, transactions and banking had to happen very fast. Long-time ago, communication was being done through postal addresses. The information reached various organization when it was absolutely very late losing opportunities and money. Therefore, introduction of electronic mails enabled SMEs get information very fast for decision making. In addition, SMEs were calling their clients through telephones and mobile phone to make fast electronic commerce/ transactions that were paid through electronic banking.

Though these ICT developments were initiated, it was a challenge to SMEs staff to accept the developments because of various limitations such as low IT skills, low education level and resistant to change. Therefore, SMEs kept at par with the technology so as to gain the competitive advantage and success in their marketing

initiatives. This was achieved through ensuring that in any ICT application introduced in the SMEs, performance expectation, effort expectation, social influence and facilitating circumstances on the ICT applications by employees had to be noted. Any discrepancies on the acceptance of these ICT applications through these key factors, SMEs ensured that interventions such as training and marketing were offered so that they could easily adopt to the new ICT applications. UTAUT was used by studies such as Kabanda and Brown (2017); Mosweu et al. (2016); and Yildiz (2018) to elaborate more on how ICT could be used to bring compatibility to various business aspects such as document workflow management system in trade sector. This compatibility also involved the employees accepting the new ICT systems introduced.

UTAUT had a limitation as cited by Hung et al. (2007) that this theory relied on self-reported usage among employees and therefore did not examine the actual usage of ICT system. That was, there could be discrepancy between what employees report as usage and the actual usage. However, this limitation did not affect this study since the study was more inclined on the end results such as goods and services sold in a market after usage of an ICT application rather than the number of usages of that ICT application.

2.7.2 Theory of Administrative Behavior (TAB)

Theory of Administrative Behavior (TAB) was first introduced by Simon (1947) later revised in 1955 and 1991. TAB stated that making logic and assessable decisions was the core purpose of administration. Therefore, for a firm to perform administration function effectively there needed to be room for scientific analysis on its various operations. This was to meant that an organization's operations followed a clear and concise technique that could be repeated, when need be, thereby making it more of a cycle. According to Simon (1947), human choice had to be highly included in the

decision-making process. Human choice inclusion made it possible to adjust various decisions based on rationalism on unique market situations or environment.

Theory of Administrative Behavior was used in this study to guide data management variable and social media management variables since they were all related to administration. In SMEs, the process of managing data and social media platforms was for the sole purposes of making administrative decisions such as when to supply, when to market, and when to improve the goods and services. For example, when an SME maintained contact information on clients in a market who had already purchased, it could use this information to call and know the satisfaction rate of the goods and services. The negative or positive feedback given would be used to improve more on what they were offering.

When these SMEs initiated various marketing initiatives, they were keen to include key information (which several old clients requested to be included in the good and service) as an attraction reference to the new and already established markets. Utilization of ICT to manage data and social media was not complete unless the information helped in making relevant decisions concerning the goods and services. SMEs could use data management such as accounting systems, inventory control systems, marketing technology systems, customer relationship management systems, analytics systems and business intelligence systems to make decisions. For example, SMEs would opt to use accounting systems to examine the cost of various marketing initiatives such as advertisement and discounts towards the business. This information would be used in making decision on how long to allow these initiatives without hurting the business revenue. Inventory control systems could provide useful information to know the quantity of goods currently present in the stores to reduce any more purchases of the same.

An SME could use marketing technology and analytics systems to map out the areas that were previously generated positive feedback on sales. This information could be used to make decision on where to open new branches of the SMEs based on consistent high sales numbers. Customer relationship management systems and business intelligence systems could be used by an SME to establish its loyal clients and new customers. This information would help the SME initiate various programs such as offering scholarships to few selected loyal customers so that they can train on a college institution course of their choice. TAB was previously used by a past study such as Mintrom (2020) to explain various decision-making processes in organizations.

TAB was widely criticized by Hortal (2017) that it was bounded by procedural rationality hence believing that knowledge was only gotten through experience (empiricism) from following the procedures for a period of time. However, the current study had a purpose in assessing how decisions made on ICT elements such as ICT applications, data management, social media management and cyber security affects market access. Therefore, less emphasis was made on the length of decision-making process.

2.7.3 Socio-technical Systems Theory (SST)

Socio-technical Systems Theory (SST) was developed by Emery and Trist (1960). SST stated that for a complex organizational design to work there was need to incorporate people, technology and environment who worked in harmony. This meant that an organization could not eliminate the participation of people, technology and environment in the design so that it could work effectively. However, harmonizing these three factors often caused a leakage in the system whereby the organization's information got exposed to unwarranted parties (Malatji et al., 2019).

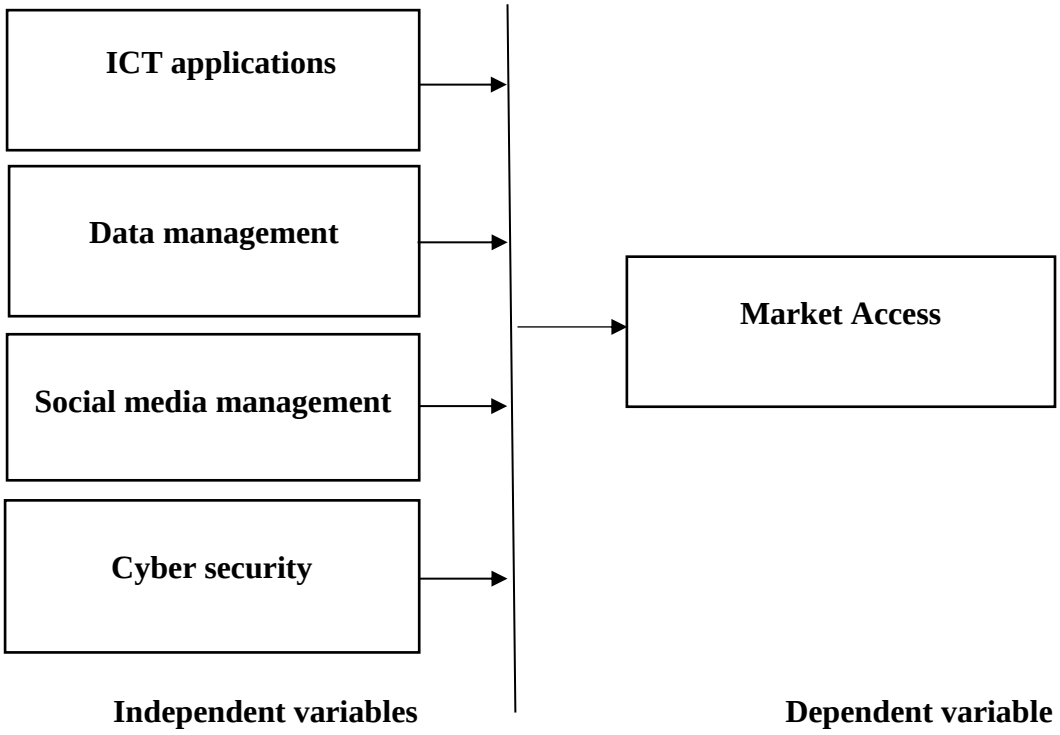
SST was used in this study to guide cyber security variable since it was the role of an organization IT department to ensure there was security in its ICT systems. This security ranged from end-point security, security from malware such as viruses, network security, cloud security, ICT applications security and internet security. Lack of a safe environment whereby there were spies who got personal passwords could cause a breach in end-point security whereby an authorized third party accessed hijack sensitive marketing information in the system. Poor database technological management resulted to staff with ill-motives introduce malware such as viruses to slow down the data processing process. This negatively affected timely delivery of goods and services by the SME. People were also the genesis of disharmony in SST. This was whereby; they disclosed passwords to their friends who work within and out of the SME. As a result, it became easy to hack various security protocols so as have unauthorized access to information on cloud and also initiate fraud transactions using the ICT applications. Socio-technical Systems Theory was criticized in its facilitation on designs of work systems (Hughes, 2017).

2.8 Conceptual Framework

This was a diagram used to explain the various elementary concepts in a study. In this study, the key variables were both independent and dependent variables. The dependent variable was the market access. The independent variables were the ICT applications, data management, social media management and cybersecurity. Figure 2.1 gave the conceptual framework.

Figure 2.1

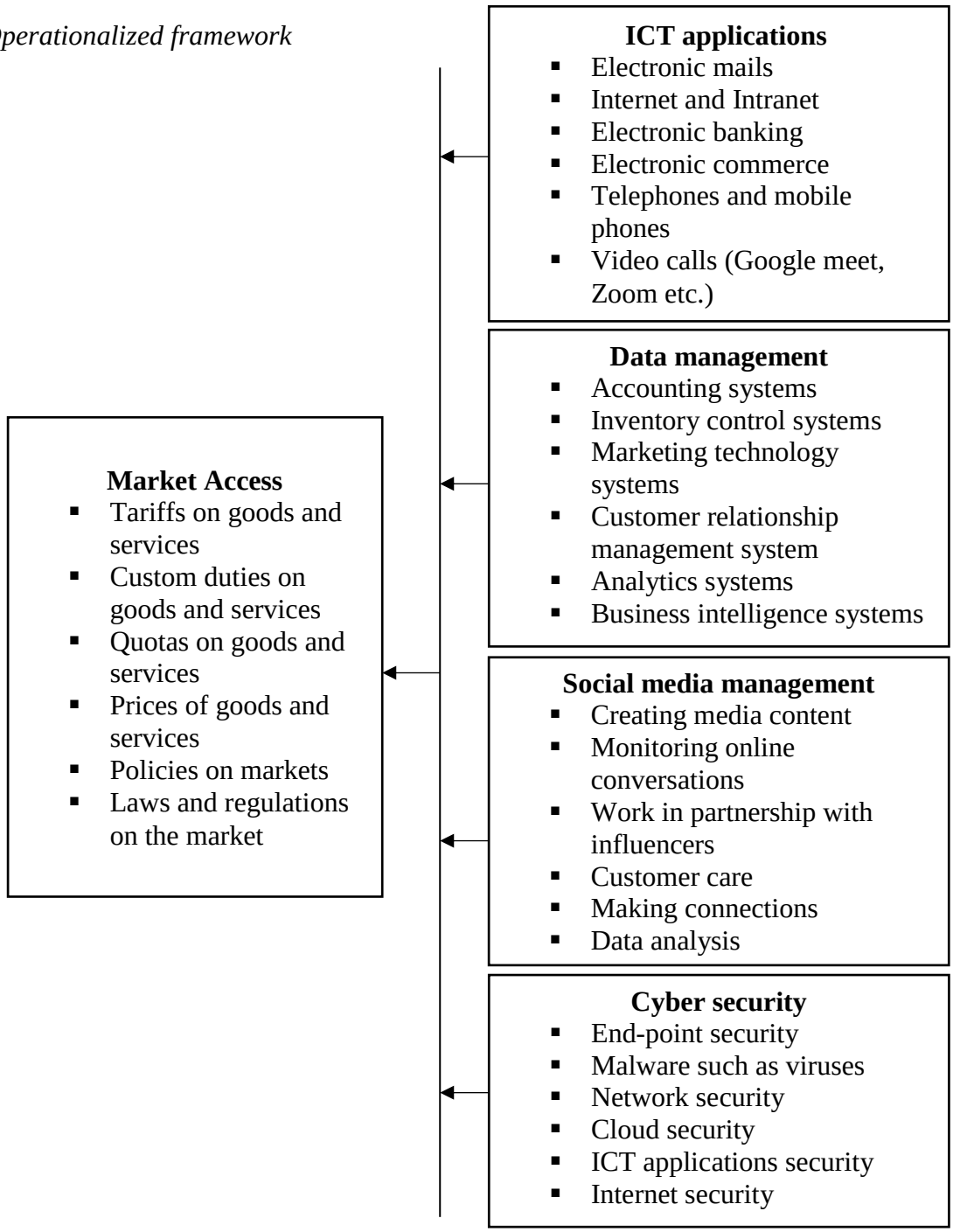
Conceptual framework



2.9 Operational Framework

Figure 2.2

Operationalized framework



According to Figure 2.1, market access had various indicators such as tariffs on goods and services, custom duties on goods and services, quotas on goods and services, prices of goods and services, policies on markets, and laws and regulations on the market. The first independent variable which was ICT applications includes various indicators. These indicators were electronic mails, internet and intranet, electronic banking, electronic commerce, telephones and mobile phones, and video calls (google meet, zoom etc.).

The second independent variable which was data management had several indicators. These indicators were accounting systems, inventory control systems, marketing technology systems, customer relationship management system, analytics systems, and human resource data systems. The third independent variable which was social media management had indicators such as creating media content, monitoring online conversations, work in partnership with influencers, customer care, making new connections, and data analysis. Cybersecurity which was the fourth independent variable had indicators such as end-point security, malware such as viruses, network security, cloud security, ICT applications security, and internet security.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter assessed the strategies that were used in designing the methodology of the study. It covered research design, location of the study, target population, sampling procedures, methods of data collection, pre-testing, data collection procedures, analysis of both quantitative and qualitative data, and ethical considerations.

3.2 Research Design

A research design was a strategic framework that a study used to integrate, collect, measure and analyse data (Sileyew, 2019). There were different types of research design such as, descriptive, experimental, and quasi-experimental among others (Baker, 2017). In this study, descriptive research design was adopted to assess the influence of information communication technology on market access by SMEs in Trans Nzoia County, Kenya (Sileyew, 2019). This was because; this research design was able to substantiate the study of relationships between variables without affecting their activities (Baker, 2017). In addition, the study was able to underpin the explanations on the influences and characteristics between the variables. That was, the relationship between the independent and dependent variables of the study.

3.3 Location of Study

This was the place within which the study collects data. Trans Nzoia County, Kenya was the location of the study. According to Trans Nzoia County government (2021), it was one of the 12 counties selected by United Nations Industrial Development Organization [UNIDO] for its farmers and agricultural SMEs to be trained and

supported. This training and support were through a program called Market Access Upgrade Program [MARKUP]. This program equipped agri-business SMEs and paid attention to quality standards through use of ICT tools. In addition, MARKUP intended to connect these SMEs with international markets for economic growth. Further on, Trans Nzoia County SMEs were experiencing challenges related to poor funding due to high poverty rates in the area (Trans Nzoia County Government, 2020). The high poverty rate caused most SMEs not generate high local sales in the area. In addition, any efforts to expand their market to neighbouring counties and other nations such as Uganda was futile due to poor ICT networks and high custom duty taxes (Kenya Institute for Public Policy Research and Analysis [KIPPRA], 2020).

3.4 Target Population

A target population was a group of institutions that a study collected the data from. The target population was 37 SMEs spread over the five sub-constituencies which were Cherangany, Kwanza, Saboti, Endebess and Kiminini in Trans Nzoia County (See appendix V). An SME was an organization that had 50-100 staff and with an annual turnover of Kshs 500,000 to Kshs 30,000,000. The study targetted various respondents in these 37 SMEs. The respondents were 37 general managers, 92 ICT officers, 81 compliance officers, and 77 marketing officers.

A General manager was involved in all departmental decision making in an SME. They were relevant in this study since they participated before in board meetings and hence were aware of any investment whereabouts included in ICT applications towards gaining market access.

ICT officers were important in providing information related to the ICT infrastructures installed and the various challenges the SME faces. They were also very much involved in developing ICT applications, data management systems and cyber security concerns.

Compliance officers were relevant in providing information on the various measures that SMEs were putting in place in compliance with new markets requirements such as tariffs on goods and services, custom duties on goods and services, quotas on goods and services, prices of goods and services, policies on markets, and laws of the market.

Marketing officers provided information on how SMEs were conducting various social media marketing campaigns, using ICT to sell goods and services, customer care functions and partnering with influencers to promote goods and services.

These four types of respondents were chosen because they were involved in various operations of ICT on market access intricacies. This is shown in Table 3.1.

Table 3.1

Target population

SME	General managers	ICT officers	Compliance officers	Marketing officers	Total
Supermarkets	7	15	12	6	40
Hotels and restaurants	14	20	31	34	99
Tea processing firms	1	7	5	8	21
Maize milling firms	5	22	11	15	52
Whole sale and retail outlets	5	2	7	3	17
Milk processing firms	5	26	16	11	58
Total	37	92	81	77	287

Source: Trans Nzoia County Government (2020)

3.5 Sampling techniques and Sample size

A sampling technique was the method used to select representative samples when the population was large to conveniently cover all areas (Taherdoost, 2016). According to Vasileiou et al. (2018) and Mugenda and Mugenda (2003), a sample size of between 10%-30% could be deemed reliable in a study to represent the entire population. In this study, the 37 SMEs were sampled using simple random method whereby 30% of the SMEs (11) were selected (Mugenda & Mugenda, 2003). From the 11 sampled SMEs, the study also further sampled the study's respondents. The study sampled 37 general managers, 92 ICT officers, 81 compliance officers, and 77 marketing officers using simple random sampling method to obtain 30% of each sampling categories of

respondents. This resulted to 11 general managers, 28 ICT officers, 24 compliance officers, and 23 marketing officers. Table 3.3 gives sampled respondents.

Table 3.2

Sampled Respondents

SME	General managers	ICT officers	Compliance officers	Marketing officers	Total
Supermarkets	1	5	4	3	13
Hotels and restaurants	2	6	8	9	25
Tea Processing firms	1	6	4	5	16
Maize milling firms	4	2	3	2	11
Whole sale and retail outlets	2	3	2	2	9
Milk Processing firms	1	6	3	2	12
Total	11	28	24	23	86

3.6 Data collection tools

Data collection tools were the research instruments that the study used to gather information from the respondents (Canals, 2017). Therefore, since the respondents were of different ranks, the study used interview and questionnaires to gather information. Interview method was used to collect data from general managers (see appendix III). Questionnaires with both closed and open-ended questions were used to gather data from other respondents such as ICT, compliance and marketing officers (see appendix IV). The closed ended part of the questionnaire had specific questions in

Ordinal Likert Scale. This scale included options such as 1-Strongly disagree, 2-disagree, 3- Neither agree or disagree, 4-Agree, 5-Strongly agree (Cooper & Schindler, 2014). In addition, the questionnaires were grouped into six sections. The first section inquired on the respondents' personal information. The second section inquired about ICT applications, data management, social media management and cybersecurity's influence on market access. The last section asked questions related to market access. A questionnaire was more relevant in collecting information since the study was descriptive in nature and also so as to have a cohesive feedback on a number of officers. In addition, it provided an opportunity for the study to underpin its objectives through using the gaps identified from previous studies in chapter two to develop questions.

The interview guide and questionnaires which were used to collect data from the general managers had six sections. These sections had questions on general information, ICT applications, data management, social media management, cyber security and market access respectively. The gaps identified in chapter two were key in guiding the nature of questions asked in relation to the indicators of the main variables of the study. The interview guide questions were grouped into six sections. The first section inquired on the respondents' personal information. The second section inquired about ICT applications, data management, social media management and cybersecurity's influence on market access. The last section asked questions related to market access. An interview guide was most reliable in providing further clarifications whereby respondents were required to explain processes, procedures, challenges, benefits, polices and regulations related to the objectives of the study. The interview provided a chance for the respondents to explain as to why marketing initiatives through use of ICT put into place for market access were not working as required.

3.7 Pre-Test

A pre-test was a test conducted in a different category of respondents and location on the data collection tools before the main study (Fraser et al., 2018). It enabled the study to clarify and rectify any ambiguous questions before conducting the main study. This study conducted a pre-testing in Elgeyo-Marakwet County. The SMEs in this county also experience challenges related to unfruitful marketing ventures leading to very low market access in both local and international markets. This unfruitful marketing was due to prevailing poverty rates experienced in the area and as well as limited access to ICT.

The poverty rates in Elgeyo- Marakwet County were similar to that on Trans Nzoia County. The study conducted a pre-test at Kenya Cooperative Creameries [K.C.C.] at Elgeyo Marakwet County. This was because K.C.C. in Elgeyo- Marakwet served the same purpose and have similar characteristics as the one from the main study. The pre-testing respondents were 10% sample size of the main study's sampled population (Mugenda & Mugenda, 2003). That was, 1 general manager, 2 ICT officers, 2 accounting officers, and 2 marketing officers selected through purposive sampling method. Pre-test was a study conducted to enable the study issue the questionnaires to another category of respondents so that they answered the research instruments (Mugenda & Mugenda, 2003). If they were able to answer them without any strain, it showed that the research instruments could be relied upon. However, pre-test also enabled the study to correct any errors or improve clarity on ambiguous questions (Mugenda & Mugenda, 2003).

3.8 Validity of research Instruments

Validity was the ability of a research instrument to effectively measure what it was meant to measure (Salkind, 2014). Types of validity such as content, criterion and face validity were observed in this study. Content validity were observed by making sure that questions inquired were relatable to ICT applications, data management, social media management, and cyber security on market access by SMEs in Trans Nzoia County, Kenya (Salkind, 2014). The past literature facilitated to ensure that both the interview guides and questionnaires issued had done that. Criterion validity tested how well the outcome of the study measured the influence of ICT applications, data management, social media management, and cyber security on market access by SMEs in Trans Nzoia County, Kenya. (Salkind, 2014). Face validity was observed when there was comparison of the study's results with various studies that had ever dwelt with the variables of the current study. To achieve that, this study heavily consulted the already reviewed literature to identify the studies that talked about the main constraints of the study (Salkind, 2014).

3.7.2 Reliability of Research Instruments

Reliability was the dependability of a study instrument's results when used at a target population (Kothari & Garg, 2014). There were many ways of measuring reliability such as test-retest reliability and internal consistency reliability (Eisinga et al., 2012). However, this study used Cronbach's alpha coefficient in determining reliability Cronbach's alpha coefficient ranges from 0 to1 hence any study's research instrument to be reliable, had to have a minimum of 0.7 Cronbach's alpha (Cooper & Schindler, 2014). The higher the range the more reliable a study's instruments are. In this study,

reliability test was applied when the pre-test results were subjected to Cronbach's alpha coefficient test to determine whether they were suitable in this study or not.

3.8 Data Collection Procedures

The study sought introduction letter from Kenya Methodist University (KeMU). This letter was attached with other required documents by the NACOSTI to be permitted to apply for a research permit. NACOSTI issued research permit which gave authority to collect data. The researcher recruited 2 research assistants whose data collection services were consulted. The recruitment was done from local residents of Trans Nzoia County. This ws because the local residents were more familiar with the SMEs in the region. They were trained for a half a day on the key purpose of the study, methodology and confidentiality.

Once equipped, the researcher and research assistants proceeded to the sampled SMEs in the designated areas. The researcher proceeded to seek authorization from the general managers to collect data from the selected SMEs in Trans Nzoia County (see appendix I). The approval of the study was done by the general managers in charge of the SMEs. Later on, the research assistants began by interviewing the general managers (see appendix III). The responses were noted down by the researcher in a notebook which was later combined and used for further analysis. After the interviews had been conducted, the research assistants requested the general manager to give them directions on how they could identify the ICT officers, accounting officers, and the marketing officers.

The researchers began by identifying themselves to the other respondents. They issued them with study's introduction letter (see appendix II). Once the respondents read and agreed to undertake the study, the researchers issued the questionnaires to the

respondents (see appendix IV). They waited for them to fill the questionnaire but in case they were not able to fill the questionnaires due to work commitments, the researcher left the questionnaires to them to pick after one week. After one, week, the research assistants went back to the SMEs and picked the questionnaires for analysis. The research assistants stored all the answered questionnaires and interview responses in a safe place after the analysis.

3.9 Data Analysis and Presentation

This study began by analyzing quantitative data. Once data was collected, proper coding of sort out data was done by the help of Statistical Package for Social Sciences (SPSS software, Version 24). The coding involved conveying different statistics arrangements with numbers to assist in analysis. Different computation on descriptive statistics such as mean, standard deviation and percentages were first be computed. The results were used to answer the research hypothesis of the study. Later on, there was use of linear regression to answer each research question and multiple regression analysis to study the influence that ICT applications, data management, social media management, and cyber security on market access by SMEs in Trans Nzoia County, Kenya. The model was as follows:

Market Access = $C + \beta 1X1 + \beta 2IX2 + \beta 3IX3 + \beta 3X4 + e$

Where;

XI= ICT applications

X2= Data management

X3= Social media management

X4 = Cyber security

C = constant coefficient (intercept)

β = slope coefficient of independent variables

Ɛ= error term

Normality test, linearity test, heteroskedasticity test and auto-correlation test were used to determine the suitability of using regression in the analysis. In addition to descriptive interpretation, tables and detailed explanations were used to present the final results of the study.

Regarding the qualitative data collected through interview, the study intended to first group all the responses given by the study according to the main objectives of the study. These responses were then analyzed using thematic analysis to derive similar information and accord it themes based on the results. These themes were therefore used for report generation on the real facts given by the respondents on the various questions asked. Data was provided through narrations such as direct quotations and general statements on the responses.

3.10 Ethical Consideration

Before conducting the study, the researcher got permission from the institution to carry out the study. The permission was in the form of an introductory letter that was used to apply for National Commission for Science, Technology & Innovation (NACOSTI) research permit. The permit was used as the authorization to conduct the study. The principle of voluntary participation was strictly adhered to and the respondents were not coerced into participation in the research as they were requested by the researcher to grant their acceptance to respond. Formal communication on confidentiality was issued through introduction letter as shown in appendix II. Anonymity was maintained as the questionnaires did not have any personal details. Respondents were explained about the reason for the study that it was absolutely for scholarly purposes and they would guarantee of their privacy (see appendix II). Pre-testing of instruments was based on voluntary participation from the respondents. The study was keen on not to fabricate data that had ever been used by other studies, and incase a contribution was made by a

study; in-text citations were made in the study and also acknowledged the same in the references section.

CHAPTER FOUR

RESULTS AND DISCUSISON

4.1 Introduction

This chapter provided the findings gotten on the analysis of data collected. It was organized as follows: diagnostic statistics which had normality, linearity, multicollinearity, and auto correlation; descriptive statistics, model summary and ANOVA of each variable. The chapter also provided multiple regression which has model summary, ANOVA of all the variables and lastly the regression coefficients which constituted the general model of the study.

4.2 Response Rate

The study issued questionnaires to 75 respondents and interviewed 11 general managers hence a total of 86 respondents. The respondents who answered the questionnaires were 63 while the interviewed general managers were 9. This formed a total of 72(84%) respondents. According to Materko (2015), responses above 75% are highly acceptable and reliable.

4.3 Reliability Results

The study conducted a pre-test at Kenya Cooperative Creameries [K.C.C.] at Elgeyo Marakwet County. The respondents included 1 general manager, 2 ICT officers, 2 accounting officers, and 2 marketing officers selected through purposive sampling method. The results were analyzed and measured suing the Cronbach coefficient results as indicated in Table 4.1.

Table 4.1

Reliability Results

Instrument	Cronbach's Alpha	N of Items
Questionnaire	.927	6
Interviews	.884	1

Table 4.1 indicates that the questionnaires had a Cronbach alpha value of 0.927 while the interview guide had a value of 0.884. Cooper and Schindler (2014) advised that for research instruments to have reliability, the Cronbach's alpha coefficient ranges should have a minimum of 0.7 and above. This shows that the study's instruments were reliable and their results could be relied upon to resolves the research problem.

4.4 General Information

General information was inquired as the very first section on each questionnaire and interview guide. In the questionnaire, the study asked about the job position, years they had worked, and the brand of computers they were using. In the interview guide, the study asked questions related to job position and years of experience they had worked at the SME. Table 4.2 gives the findings.

Table 4.2

General Information

Job position	Frequency	Percent	Cumulative Percent
General Managers	9	13	13
ICT officers	14	19	32
Compliance officers	15	21	53
Marketing officers	34	47	100
Total	72	100	
Length of stay in the SME	Frequency	Percent	Cumulative Percent
Less than 1 year	15	21	21
1-2 years	29	40	61
2-5 years	14	19	80
5-10 years	8	11	91
Above 10 years	6	9	100
Total	72	100	
Computer Brands	Frequency	Percent	Cumulative Percent
Apple	7	10	10
H. P	37	51	61
Toshiba	16	22	83
Dell	11	15	98
Ace	1	2	100
Total	72	100	

According to Table 4.2, 34 (47%) marketing officers and 15(21%) compliance officers comprised of the highest number of officers. Nevertheless, general managers were 9(13%) and 14(19%) ICT officers were low. Low number of ICT officers indicate that SMEs had not yet reached their potential in e-marketing initiatives. Yes, they could have huge numbers of marketing officers, but their operations were ineffective since they mainly relied on word of mouth and friend's referral to showcase the SMEs goods and services. This could be a key contributor to unsuccessful marketing initiatives. Oji

et al. (2017) also got similar findings that many SMEs in Cape Metropole, South Africa had not hired substantial ICT officers making it very hard to coordinate social media activities hence failing to fully adopt it.

Further on, according to Table 4.2, 29(40%) staff had stayed in their SME for a period of 1-2 years and 15(21%) less than 1 year. Nevertheless 8(11%) had stayed for a period between 5-10 years, and only 6(9%) above 10 years. From these findings it can be established that most SMEs had laid off most of their experienced staff due to a factor such as covid-19 recession effect. The experienced staff demanded more pay which was not forthcoming in the past two years hence as a result, they resulted to hiring less experienced staffs to replace the laid off staff. The consequences turned out to be catastrophic since the new staff were not quite adopting fast hence had not acquitted themselves adequately with the SMEs goods and services offered for effective marketing purposes.

This slow adoption was due to covid-19 restrictions to work from home thereby not internalizing the processes and procedures on how to use computer applications, manage data, analyze and manage social media platforms, and as well as securing the computers against cyber insecurity. Awinja and Fatoki (2021) laments that SMEs cannot grow unless their staff get a chance to internalize various ICT operations such as digital financial services

The study also inquired on the types of computer brands SMEs were using. The findings on Table 4.2 indicate that 37(51%) of SMEs used H.P computer brands, followed by Toshiba 16 (22%). Nevertheless, the least used computers were apple 7(10%) and Ace 1(2%). From these findings the study discovered that SME had put effort to improve their ICT infrastructures towards reliable brands of computer. That notwithstanding,

few put effort to use most reliable brands such as apple computers due to high costs. Caputo et al. (2018) shares that digital revolution has boosted revolution in ICT infrastructure whereby time and revenue generated are the priorities towards moving a step closer to a firms' performance.

4.5 Diagnostic Tests

For reliable findings, the study tested various diagnostics. These tests included normality, linearity, multicollinearity, and auto correlation. The diagnostic tests enabled the study ascertain the collected data to give out quality results that would be acceptable and reliable.

4.5.1 Normality Test

The first test conducted was the normality test. This study used Kolmogorov-Smirnov test. According to Setiawan et al. (2021), for a study data to be normal, its Asymp. Sig. (2-tailed) values should be above 0.05. Table 4.3 gives the findings.

Table 4.3

Normality Test

		ICT Applications	Data Management	Social Media Management	Cyber Security	Market Access
N		72	72	72	72	72
Normal Parameters[a,b]	Mean	25.54	25.88	17.15	25.31	23.8750
	Std. Deviation	2.788	2.478	3.687	2.476	3.13066
Most Extreme Differences	Absolute	.144	.188	.081	.118	.127
	Positive	.079	.188	.067	.083	.087
	Negative	-.144	-.154	-.081	-.118	-.127
Kolmogorov-Smirnov Z		1.222	1.597	.685	1.005	1.078
Asymp. Sig. (2-tailed)		.101	.212	.737	.265	.196

a. Test distribution is Normal.
b. Calculated from data.

The findings indicated that the Asymp. Sig (2-tailed) value for ICT applications was 0.101; data management was 0.212; social media management was 0.737; cyber security was 0.265; and market access was 0.196. All the values were above 0.05 indicating that the data collected was normal.

4.5.2 Linearity Test

The second test done was the linearity test. ANOVA table was used to test for linearity as indicated on Table 4.4. According to Knief and Forstmeier (2021), for data to be linear, its deviation from linearity should be above 0.05.

Table 4.4

Linearity Test

			Sum of Squares	Df	Mean Square	F	Sig.
Market Access ICT Applications	Between Groups	(Combined)	106.886	10	10.689	1.107	.372
		Linearity	36.989	1	36.989	3.831	.055
		Deviation from Linearity	69.897	9	7.766	.804	.614
	Within Groups		588.989	62	9.656		
	Total		695.875	72			
Data Management	Between Groups	(Combined)	96.209	9	10.690	1.105	.373
		Linearity	21.531	1	21.531	2.226	.141
		Deviation from Linearity	74.679	8	9.335	.965	.471
	Within Groups		599.666	63	9.672		
	Total		695.875	72			
Social Media Management	Between Groups	(Combined)	139.414	15	9.294	.935	.532
		Linearity	43.270	1	43.270	4.354	.041
		Deviation from Linearity	96.145	14	6.867	.691	.773
	Within Groups		556.461	57	9.937		
Cyber Security	Between Groups	(Combined)	71.034	11	6.458	.620	.805
		Linearity	21.063	1	21.063	2.023	.160
		Deviation from Linearity	49.972	10	4.997	.480	.897
	Within Groups		624.841	61	10.414		
	Total		695.875	72			

According to Table 4.4, the findings indicate that the deviation from linearity in all the four variables was above 0.05. ICT applications variable deviation from linearity was 0.614; data management variable deviation from linearity was 0.471; social media management variable deviation from linearity was 0.773; Cyber security variable deviation from linearity was 0.897. Therefore, all the variables deviation from linearity were above 0.05 indicating that the data collected was linear.

4.5.3 Multicollinearity Test

The third test done was the multicollinearity test. Coefficients table which had tolerance and VIF coefficients was used to test for multicollinearity as indicated on Table 4.5. According to Vatcheva et al. (2016), the tolerance level should be above 0.2 and VIF below 5 for a study not to have multicollinearity issue.

Table 4.5

Multicollinearity Test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	14.807	4.336		3.415	.001		
ICT Applications	.187	.180	.167	1.039	.001	.523	1.912
Data Management	.045	.192	.036	.234	.003	.583	1.716
Social Media Management	.177	.101	.209	1.745	.016	.944	1.060
Cyber Security	.003	.204	.003	.017	.006	.518	1.931

From Table 4.5, the findings indicate that ICT application had a tolerance value of 0.523 and VIF value of 1.912; Data management had a tolerance value of 0.583 and VIF value of 1.716; Social media management had a tolerance value of 0.944 and VIF value of 1.060; Cyber Security had a tolerance value of 0.518 and VIF value of 1.931. These results indicated that all variables had a tolerance value of above 0.2 and VIF value of below 5 hence they did not multicollinearity problem.

4.5.4 Autocorrelation Test

The last test done was the autocorrelation test. Durbin-Watson was used to test for linearity ad indicated on Table 4.6. Durbin- Watson value should be between 0-4. If it is 0-2 then there is a positive correlation; 2 indicates no auto-correlation; and if it is 2-4 then there is a negative value (Chen, 2016).

Table 4.6

Autocorrelation Test

R	R. Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.912a	.831	.817	3.06220	1.962

From the findings in Table 4.6, the Durbin-Watson value was 1.962 which was between 1-2 hence indicating a positive correlation among the four variables of the study.

4.6 Descriptive Statistics of Market Access

Market Access was the dependent variable. The study asked various questions both from the questionnaire and also in the interview sessions. Market Access had various indicators such as tariffs, custom duties, quotas, prices, policies on markets, laws and regulations. The questionnaire was closed ended which was answered by ICT officers, compliance officers and marketing officers. The closed ended part of the questionnaire had specific questions in Ordinal Likert Scale. This scale included options such as 1-Strongly disagree, 2-disagree, 3- Neither agree or disagree, 4-Agree, 5-Strongly agrees. Table 4.7 gives the findings.

Table 4.7

Descriptive Statistics of Market Access

Statements N=63	1	2	3	4	5	Mean
ICT applications use have caused SMEs to gain more access to markets	1(2%)	5(8%)	0(0%)	7(11%)	50(79%)	4.59
Social media management has caused SMEs to gain more access to markets	2(3%)	12(19%)	0(0%)	28(45%)	21(33%)	3.86
Data management has caused SMEs to gain more access to markets	3(5%)	5(8%)	0(0%)	9(14%)	46(73%)	4.43
Cybersecurity has caused SMEs to gain more access to markets	5(8%)	23(36%)	0(0%)	35(56%)	0(0%)	3.03
Maintenance of gained markets through adhering to market regulation	5(8%)	8(13%)	0(0%)	24(38%)	26(41%)	3.92
A team to research on new markets	4(6%)	10(16%)	0(0%)	15(24%)	34(54%)	4.03

The findings from Table 4.7 indicate that ICT usage had significantly improved market access of the SMEs. Fifty, (79%) of the respondents strongly agreed to this on a mean of 4.59. Nevertheless, cyber security had lowest significance towards improvement of market access of the SMEs. Twenty-three, (36%) of the respondents disagreed with this on a mean of 3.03. The findings indicate that loopholes in cyber security had raised concerns that were hindering the SMEs to access and maintain established markets. The ICT departments was not performing well in ensuring security of SMEs data was maintained. This resulted to unsecure payment systems, periodical hacking of the systems thereby causing loss of intended product innovations to competitors and unauthorized access to SMEs' information. In agreement Clement (2020) stated that one of the major challenges of e-commerce sales was due to abrupt loss of business ideas on product innovation through hacking and unauthorized access. Further on, Cardoso and Martinez (2019) also compliment the findings by indicating that once a system has a leakage to allow third party in a payment process, then the fate of the transaction is doomed and prone to theft.

The study conducted interviews on nine managers in the SMEs. The managers interviewed were given codes beginning from 'A' to 'I'. Among the interview guide sections, there was a section inquiring questions related to market access. The study requested the managers to elaborate the various strategies that their organizations had introduced to handle problems related to SMEs access to markets. The Managers indicated that they have improved trade shows. One manager D said that,

''Trade shows are made possible through events such as county level show days, regional SMEs weeks, and county level national days''.

In addition, SMEs partnered with the government to directly market their goods in government events; and promoted social corporate responsibilities such as sponsoring needy student's education, providing relief food and taking part in environmental initiatives. The interview sought clarification on how SMEs partnered with the government. Manager A said that,

''Working with the government requires an SME to be knowledgeable of the government calendar. Once you get to know that they would be holding meetings with high end foreigners, you can decide to chip in some money and buy snacks for the event. In return, the government may allow your SME to pitch a tent with your products. That is one way you can access direct market in foreign nations.''

Past studies such as Brandão et al. (2019) viewed foreign market entry as opportunities that SMEs utilizes to sell their goods and services. However, the nature of entry is based on a contact person or institution that is located within the targeted international nation. Therefore, Brandão et al. (2019) advises that SMEs should use means such as partnering with their government in international events and social media among others so as to clutch this chance.

In this line about interacting with the government, the study asked the managers to highlight some of the market access related challenges that their SME had endured as a result of covid-19 lockdown measures put by the government. The managers indicated that SMEs were not allowed to send their goods via air transport due to grounding of planes hence shipping their goods which took months leading to massive losses. In addition, the government suspended all social gatherings which made it almost impossible to set up trade fairs or partner with the government. The loss of touch with the potential clients led to low sales and unstable business prospects hence limiting

market access. The government also directed that people should work from home making it hard for clients to come to the physical location for direct purchasing. This made it hard for the SMEs to have mega sale since most clients who trusted the online platform bought goods in small quantities. For example, Manager I complained that,

''Clients who buy our goods in huge volumes in terms of millions could not do so since most of them come to the where we are located for authenticity of the SME. As you know nowadays proxy SMEs are milking clients dry with fake goods or simply, they do not deliver.''

This argument is also supported by British Business Bank (2019). According to BBB (2019), SMEs have faced difficulties in convincing online clients to purchase more goods and services. Most clients fear losing their money without getting the right goods and services from the SMEs. International Trade Center (2020) agrees that SMEs competitiveness was deterred due to lockdown making it hard for clients to buy large quantities of goods.

The study saw it fit to inquire more on the procedures used by SMEs when venturing into global markets. Managers indicated that they first acquitted themselves with the laws of the international nation. Once satisfied, they examined further the policies and prices set up on their specific markets. SMEs at this point were already decided whether to join the market or not. If they decided to join the global market, they them examine deeper on tariffs, custom duties and quotas put into place on goods and services. They would then proceed to pay the necessary charges in every stage till they were able to sell or buy goods and services. According to Lee and Falahat (2019) also found out that the ability of an SME to learn faster the requirements needed to smoothly sell and buy goods in an international market is paramount. An SME cannot assume that it would

not concern itself with clients and not consider the laws, policies and procedures of doing business (Lee & Falahat, 2019).

The study was also interested in understanding how SMEs measured performance related to accessed markets through use of ICT. The managers responded that number of inquiries via social media, emails and direct calls per month; number of online invoices sent; and e-payments such as internet banking. In relation to internet banking Manager D said that,

''It is very hard for a physical client to pay for our goods and services through internet banking. Most of them opt for either mobile banking or direct bank deposit. However, online clients pay through internet banking due to reasonable accumulating charges incurred on sending the money...''

Mutwiri (2018) used a different measurement approach whereby volume of goods sold, and number of orders was outstanding. Nevertheless, the study was interested in market access to SMEs located in Nairobi County.

The study's last question in this section required managers to describe the influence of paying taxes, export and import duties promptly on gaining more access of internal markets. The managers stated that payment of required charges improved their credit scores, were more eligible to government funding to their SMEs, reduced downtime due to abrupt seizing of their imports by Kenya Revenue Authority [KRA], and more confidence by the clients when transacting with the SMEs. Manager E said that,

''There is nothing more peaceful than paying your dues to the government entities. It boosts the confidence that customers have towards your business. When SMEs do not

pay these dues, customers associate them with illegal businesses hence may avoid them…''

Another manager F said that,

''One cannot complain of lack of government support to their SMEs when they do not pay taxes to the government. When faced with a problem, let's say a foreign SME that offers similar products with cheaper prices just to take your SME out of business, who will you turn to if not the government for help?''

Trust Kenya (2013) named tax and regulatory evasion by SMEs in Kenya, made it hard for them to have any form of bargaining power when faced with a common threat.

4.7 Descriptive Statistics of ICT Applications

ICT applications was an independent variable. The study asked various questions both from the questionnaire and also in the interview sessions. ICT applications had various indicators such as electronic mails, internet and intranet, electronic banking, electronic commerce, telephones, mobile phones and video calls (google meet, zoom etc.). The questionnaire was closed ended which was answered by ICT officers, compliance officers and marketing officers. The closed ended part of the questionnaire had specific questions in Ordinal Likert Scale. This scale included options such as 1-Strongly disagree, 2-disagree, 3- Neither agree or disagree, 4-Agree, 5-Strongly agrees. Table 4.8 gives the findings.

Table 4.8

Descriptive Statistics of ICT Applications

Statements N=63	1	2	3	4	5	Mean
There are strategies applied by this SMEs	0(0%)	0(0%)	0(0%)	6(9%)	57(91%)	4.90
Our SME has been adopting technology to operate E-procurement	0(0%)	0(0%)	0(0%)	5(8%)	58(92%)	4.92
This SME ensures payments are done in a secure ICT application	0(0%)	0(0%)	0(0%)	6(9%)	57(91%)	4.90
There is time saving done by use of mobile phones	4(6%)	9(14%)	0(0%)	33(52%)	17(28%)	3.79
Installation of internet has promoted the need for this SME staff to submit their marketing reports	0(0%)	13(21%)	4(6%)	32(50%)	14(23%)	3.75
There are ICT trainings and refreshers courses	28(44%)	27(43%)	8(3%)	0(0%)	0(0%)	2.10

From the findings in Table 4.8, it was factual to indicate that SMEs were adopting technology to operate E-procurement so as to get buyers and suppliers in Kenyan and international markets. Respondents agreed to this statement on a mean of 4.92. Nevertheless, the respondents on a mean of 2.10 which was actually the lowest in this category, disagreed that there were ICT trainings and refreshers courses offered by their SME especially in relation to new ICT applications such as electronic commerce. The study discovered that the only training offered to all staffs was on orientation on the SMEs systems during their recruitment.

From there hence forth, it was a personal initiative of the staff to update themselves by observations, asking their colleagues or through you tube tutorials on the ICT developments. This left many speculations and different school of thoughts on how to implement new changes to their roles. Fast learners adopted the new systems well, but low learners had a challenging time thereby slowing down the processes of the SMEs. This negatively affected the SMEs especially due to loss of customers and bad reputation leading to poor access of markets. In agreement with the results, Caputo et al. (2018) found out as firms are growing so it their ICT systems. Therefore, for employees to be innovative, they need to be equipped with the soft skills on ICT operations so as to be in a position to handle big data in increasing firm performance.

The study conducted interviews on nine managers in the SMEs. The managers interviewed were given codes beginning from ‘A’ to ‘I’. Among the interview guide sections, there was a section inquiring questions related to ICT applications. The study requested the managers to explain how digitalization such as use of emails and internet had influenced the growth and globalization of your SME in both physical and online business ventures. The managers stated that they were able to receive orders, send invoices, hold online meetings with international clients through google meet, receive

and make payments through internet banking, conducted online research on a specific market requirement, receive feedback and complains on your goods and services. Cassetta et al. (2020) also found out that when Italian SMEs engaged in digital technologies such as internet banking and e-commerce, they were able to grow their operations to international levels.

The study inquired on the challenges that SMEs were facing when using ICT apps such as zoom applications, e-banking, among others during normal operations. The managers stated that there were challenges such as low user skills when using apps like zoom, hanging, and forgetting passwords. Manager G stated that,

''We have frequent cases of staff forgetting their zoom passwords when supposed to attend an online meeting with clients. They end up wasting a lot of time requesting for a new password which is a great delimitation to the SME since they hardly wait for all that process. Putting in mind that time is money.''

Manager I said that,

''Most of our staff do not have an issue with mobile money (the likes of M-Pesa and airtel money). However, when it comes to e-banking, most of them do not have an idea on how to make transactions such as paying or checking the balances to confirm money receipt.''

In agreement with this study's findings, Mugo (2016) also complained that of lack of interest in ICT had made many SMEs not acquaint themselves adequately on matters such as zoom applications, internet banking which has not limited them from enjoying the benefits of accessing East African markets.

Further on, the study inquired deeper on what measures SMEs had put to ensure that the various income generated through online businesses are incorporated as part of

business. This question was in the light that most of the SMEs' staff were not familiar with internet banking. The managers indicated that to motivate the staff to make efforts in understanding the various payment structures particularly online payments, they offered them free trainings; employed qualified cash officers to handle and follow-up complicated funds transfers; and periodically reconciled their records with the banking records and any discrepancies were pointed out. Mosweu et al. (2016) found out that loss of revenue due to negligence of the SMEs staff was a contributing factor towards low usage of e-documents and records management systems by Botswana's organizations.

The study inquired further the role that business owners play in decision making on the ICT applications infrastructure adoption in this SME. Managers indicated that the owners ensured that they provided resources such as enough computers, allowances and budgets to aid in training the staff on ICT usage. In line with this query manager H said that,

''The owners hardly spend time around to monitor usage of ICT in the organization. That is why there are people like us (managers) to help them do that. The owners make decision pertaining on approving various proposed ICT budgets and also allowances to motivate our staffs to take interest in using the new ICT systems.''

Molinillo and Japutra (2017) also agrees in that the role owners of SMEs play is limited to major decision making. Since the decision to fire employees is not realistic, they motivate them towards gaining interest in adopting digital ICT. Allowances is one of the motivating factors that can be used to enable employee get them interested.

The study's last question in this section required managers to name some of the factors that influenced your SMEs to adopt ICT. The managers named user friendliness,

availability of ICT support staff, resources such as funds, and the nature of the job operations. Manager B stated that,

''ICT adoption cannot be done just for the sake of doing it. As management, we consider the strength, weaknesses, opportunities, and threats it possesses to the organization. We also cannot choose an ICT system that our staff do not roughly understand how it works. We need a system which compliments not contends with what they are paid to do.''

In South Africa Olaitan and Flowerday (2016) stated that, an effective IT governance in SMEs should be guided with its ability to blend in well with normal operations of the SME. Therefore, user friendliness is a key determinant when deciding to use it.

4.7.1 Model Summary of ICT Applications

The study conducted model summary as a type of regression analysis. The purpose of this model was to examine the influence that ICT applications had over market access. Table 4.9 gives the findings generated.

Table 4.9

Model Summary of ICT Applications

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	.854[a]	.731	.694	3.06801	1.420

a. Predictors: (Constant), ICT Applications

b. Dependent Variable: Market Access

The findings indicate that ICT Applications had an R-value of 0.854 while the R-square was 0.731. This indicates that ICT applications had a 73.1 % significance on market access. The Durbin-Watson value was 1.421 which indicated that there was a positive

correlation between ICT applications and market access. What these results illustrated was that ICT applications played a 73.1% role towards enabling SMEs get access to various markets. However, it was established that there was general lack of interest leading to resistance of adoption of various ICT infrastructures by staff. In addition, as the staff try balancing between having a secure password to ICT applications such as emails, internet banking, and zoom, they tend to create complicated passwords. After a while, when they need to use these applications, they end up forgetting their passwords slowing down the processes in the SME.

4.7.2 Analysis of Variance of ICT applications

The study conducted ANOVA of ICT applications as a type of regression analysis. The purpose of this model was to test the hypothesis. The study had a null hypothesis that there was no significant relationship between ICT applications and market access of SMEs in Trans Nzoia County, Kenya. Table 4.10 gives the findings.

Table 4.10

ANOVA of ICT Applications

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	36.989	1	36.989	3.930	.005[b]
	Residual	658.886	71	9.413		
	Total	695.875	72			

a. Dependent Variable: Market Access

b. Predictors: (Constant), ICT Applications

Table 4.10 indicates that the F-statistic was 3.930 and the significance value was 0.005 which was below than 0.05. The findings caused the study to reject null hypothesis that there was no significant relationship between ICT applications and market access of SMEs in Trans Nzoia County, Kenya. The study established that SME owners who

were mainly the directors, were not actively engaged in ensuring that ICT applications were adopted fully into the SMEs. This role was left out to managers with SME owners being limited to only making decisions and not playing any part in the implementation of these decisions towards promoting market access.

4.8 Descriptive Statistics of Data Management

Data management was an independent variable. The study asked various questions both from the questionnaire and also in the interview sessions. Data management had various indicators such as accounting systems, inventory control systems, marketing technology systems, customer relationship management systems, analytics systems and business intelligence systems. The questionnaire was closed ended which was answered by ICT officers, compliance officers and marketing officers. The closed ended part of the questionnaire had specific questions in Ordinal Likert Scale. This scale included options such as 1-Strongly disagree, 2-disagree, 3- Neither agree or disagree, 4-Agree, 5-Strongly agree. Table 4.11 gives the findings.

Table 4.11

Descriptive Statistics of Data Management

Statements N=63	1	2	3	4	5	Mean
Implementation of digitalization in export management	0(0%)	2(3%)	0(0%)	9(14%)	52(83%)	4.76
Use of customer relationship management system	0(0%)	7(11%)	0(0%)	34(54%)	22(35%)	4.13
There is entrepreneurial marketing to improve performance	0(0%)	10(16%)	0(0%)	32(51%)	21(33%)	4.02
Inventory control systems have enabled distribution of goods	0(0%)	1(2%)	0(0%)	33(52%)	29(46%)	4.43
Business intelligence system has enabled management make informed decisions	34(54%)	29(46%)	0(0%)	0(0%)	0(0%)	2.11
liaising with other firms to provide current market technology	0(0%)	3(5%)	0(0%)	11(17%)	49(78%)	4.68

According to the findings in Table 4.11, SMEs had implemented digitalization in export management. The respondents agreed on a mean of 4.76 on this statement. However, the respondents disagreed on a mean of 2.11 that the use of business intelligence system had enabled this SME management make informed decision based on the current market situations. This illustrated that the decisions made by the SME management did not originate from reliable sources such as business intelligence systems but rather on personal experiences, emotions, and available options that were cheap. This is why SMEs' marketing initiatives were not working as required. In agreement, Asgary et al. (2020) also stated that SMEs in Turkey were being exposed to global risks due to lack of factual foundation when making and implementing decisions. This resulted to SMEs making losing markets accessed since they did not consider client's needs but rather what they decided should be in place.

The study conducted interviews on nine managers in the SMEs. The managers interviewed were given codes beginning from 'A' to 'I'. Among the interview guide sections, there was a section inquiring questions related to data management. The study requested the managers to describe the various data management measures such as in accounting systems, inventory control systems, analytics systems and marketing systems put into place by their SMEs as it expanded its e-commerce to global perspectives. The managers indicated they used quick books in accounting systems; perpetual and periodic inventory system; predictive and prescriptive systems; and perfect competition marketing systems. For example, Manager B indicated that,

''We decided to settle for perfect competition marketing systems since in real world, there is stiff competition and we cannot assume things will work for us. We are not a government sponsored parastatal that should receive special privileges but an SME striving to sell its goods and services to a very competitive market''.

The study required managers to highlight how digitalization on market technological systems had enabled their SME to acquire competitive advantage in both local and global markets. The managers indicated that the SMEs had a database of current and potential clients, they were able to map out the location where there was high demand of their goods and services to supply ahead of the competitors; and they were able to come up with unique marketing strategies and campaigns in which there was a guarantee of success. In agreement, Eze et al. (2020) found out the ability of an SME to adopt digital marketing devices was pegged on their ability to offer creative methods of marketing and as well as cost-effective solutions

The study requested the managers to elaborate the various ways in which SMEs got information on goods, clients, market analysis, taxes, and other charges so as to access to new markets. The managers stated sources such as news from television and radio, social media, business newspapers, emails, institutional websites, business seminars and conferences. A response by Manager H, indicated that,

''We really on business newspapers for quality analysis on business trends, shares, stocks and bonds. Our main function is to process milk whose prices are affected on the current market trends. We need to understand where we are so as to make decisions on how much to pay farmers for their milk.''

Okoth (2013) agreed with the study's results that the decision by Equity bank to finance SMEs is majorly based on the current market lending rates as stipulated on CBK's website. Therefore, in case of complains from SMEs, they should be directed to the CBK website for information.

The study requested the managers to highlight on various ways that SMEs managed payments on digital financial services to cause growth. The managers stated that they

ensured that money was not spent at source but should first be deposited to the bank account, then allocated for different expenditures within the SME. Doing this way, promoted security of resources, minimized theft and increased credit worthiness of the SME. In addition, the SMEs maintained a separate ledger to account for any income received from digital sources such as mobile money, internet banking, and POS. Manager E expressed that,

''We highly discourage spending money at source since it's the genesis of misappropriation of funds. We follow a strict rule of ensuring that all income is sent to the bank for safe custody of firms' revenue. This enables our accounting department reconcile and be able to separate income from diverse departments such as sales and marketing.''

In agreement with the results, KIPPRA (2020) indicated that Kenyan SMEs were receiving trainings on how to avoid source spending for purposes of creating an enabling environment for inclusive growth. This growth could be viewed as credit worthiness and self-sufficient.

The last question asked in this section required managers to briefly state various training offered to their staff to ensure that they were equipped with data management skills. The managers indicated that there were periodic safe data storage, retrieval and maintenance trainings (weekly, monthly, quarterly, semi-annually or annually) depending on each SME policies. European Commission (2020b) stated that one of the most critical stages in data management is the storage and retrieval stages. On the one hand, if it is not stored in the correct format and location, the data may be lost. On the other hand, if the person retrieving data is not careful, data may be corrupted to a point that it is rendered useless.

4.8.1 Model Summary of Data Management

The study conducted model summary as a type of regression analysis. The purpose of this model was to examine the influence that data management had over market access. Table 4.12 gives the findings generated.

Table 4.12

Model Summary of Data Management

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	.788[a]	.622	.617	3.10379	1.300

a. Predictors: (Constant), Data Management

b. Dependent Variable: Market Access

The findings indicate that data management had an R-value of 0.788 while the R-square was 0.622. This indicates that data management had a 62.2 % significance on market access. The Durbin-Watson value was 1.300 which indicated that there was a positive correlation between ICT applications and market access. What these results illustrated was that ICT applications played a 62.2% role towards enabling SMEs get access to various markets.

4.8.2 Analysis of Variance of Data Management

The study conducted ANOVA of data management as a type of regression analysis. The purpose of this model was to test the hypothesis. The study had a null hypothesis that there was no significant relationship between data management and market access of SMEs in Trans Nzoia County, Kenya. Table 4.13 gives the findings.

Table 4.13

ANOVA of Data Management

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	21.531	1	21.531	2.235	.039[b]
	Residual	674.344	71	9.633		
	Total	695.875	72			

a. Dependent Variable: Market Access

b. Predictors: (Constant), Data Management,

Table 4.13 indicates that the F-statistic was 2.235 and the significance value was 0.039 which was below 0.05. The findings caused the study to reject null hypothesis that there was no significant relationship between data management and market access of SMEs in Trans Nzoia County, Kenya. From these findings it was established that many SMEs did not fully understand or simply did not value the relevance of data towards making decisions that related to market access. It was further found out that though the management team had back-up of data, they turned complete blind eye towards it and made decision that looked best fit for them. This resulted to weak policies that did not provide help towards improving the current marketing initiatives SMEs had.

4.9 Descriptive Statistics of Social media Management

Social media was an independent variable. The study asked various questions both from the questionnaire and also in the interview sessions. Social media management had various indicators such as creating media content, monitoring online conversations, work in partnership with influencers, customer care, making connections and data analysis. The questionnaire was closed ended which was answered by ICT officers, compliance officers and marketing officers. The closed ended part of the questionnaire had specific questions in Ordinal Likert Scale.

Table 4.14

Descriptive Statistics of Social Media Management

Statements N=63	1	2	3	4	5	Mean
Various social media platforms to boost marketing initiatives	3(5%)	7(11%)	0(0%)	10(16%)	43(68%)	4.32
Consultation of the services of influencers to promote our goods and services	0(0%)	0(0%)	0(0%)	5(8%)	58(92%)	4.92
Social media platforms enable showcase our products	0(0%)	0(0%)	0(0%)	6(10%)	57(90%)	4.90
Involvement of client's feedback when launching new products	18(29%)	7(11%)	2(3%)	23(37%)	13(20%)	3.00
Valuable connections with new clients through social media platforms	0(0%)	13(21%)	4(6%)	32(51%)	14(22%)	3.75
Emphasis on social media managers to monito online conversation	2(3%)	8(13%)	0(0%)	21(33%)	32(51%)	4.16

From the Table 4.14, the study discovered that social media platforms such as Facebook had boosted SMEs to showcase their goods and services to both new local and foreign markets. The respondents agreed on a mean of 4.92. However, it was discovered many SMEs did not involve client's feedback when launching new products as an improvement measure of utilizing social customer relationship management. The respondents disagreed on a mean of 3.00 which was lowest in this category. These results illustrate that SMEs did not make improvements of new goods and services based on customer feedback but rather on other factors. Failure to include customer's opinion when innovating new goods and services made SME lose touch with reality leading to irrelevant goods that the customers did not require. This led to losses after losses hence limiting their chances of survival in the accessed market. Kaushik et al. (2020) also discovered that when online Indian retailers include fashion details as per their client's wish, they succeeded immensely and vice versa.

The study conducted interviews on nine managers in the SMEs. The managers interviewed were given codes beginning from 'A' to 'I'. Among the interview guide sections, there was a section inquiring questions related to social media management. The study requested the managers to explain how their SME was able to motivate its social media management team to ensure they deliver. The managers stated that there were monetary rewards, reasonable work shifts, leave allowances, and some offered meals and snacks during the day. Manager 'I' said that,

''Our SME treats its staff at most respect. We ensure they are accorded all human possible treatment when working in their shifts so that they deliver. More special attention is accorded to the social media team since they are hold very sensitive area. Being in charge of social media means that they have the capacity to either make or break the organization. What we can do to them is provide most suitable environment

with incentives that would make them motivated enough to represent our firm best capacity.''

Kawira (2021) also emphasized that online entrepreneurial marketing strives more through motivated staff. Motivated staffs go an extra length to see success in making creative photos, posters, videos and posts.

The study further implored the managers to highlight the cost-benefit analysis of using social media platforms to access markets. The managers stated that the costs associated to social media management included internet, content creators, skilled photos and videos editors. The benefits included new clients with substantive orders, wider online market and platforms that provides quick market analysis for decision making.

Managers were required to describe the challenges their SME faced on social media adoption. The managers implied that social media required a lot of time so as to respond to client's questions as they arose; some employees took this time to login to their social media accounts instead of thinking of other solutions they could use to improve the firm's social media platforms; late responses leading to lose of opportunities; and high internet charges due to frequent use of social media platforms to upload videos. In line with this, manager H stated that,

''Social media management is one of the complicated departments we have in our firm. There is always a thin line between employees using company's time to do their personal things online and managing the social media platforms such as Facebook, twitter, and YouTube.''

Manager E also said that,

''Social media platforms require a lot of dedication and high multi-tasking efforts. Just imagine, thinking of how make the next poster attractive, answering queries of a client A on Facebook while at the same time there is another client on Twitter asking another question. It will definitely take time to answer all of them with very little turn-around time''.

Similarly, Oji et al. (2017) complained that the reason why SMEs in South Africa were finding it hard to adopt social media, was due a lot of time they consumed. Time and internet were consumed in creating posters and videos which was unnecessary hence many of them avoided social media.

The study requested managers to elaborate the strategic positioning that their SME had put into place through use of social media to maximize in accessing new markets. The responses included consistent update of at least one post, photo or video per day on the SMEs goods and services; and using social media influencers to promote the SME on social media. Dwivedi et al. (2021) also pointed out that Business-To-Business (B2B) required involvement of other third parties like influencers to promote social media adoption in an organization.

The last interview question in this section required managers to briefly indicate some of social media platforms that you SME engages in attempt to access various markets. The social media platforms indicated by the managers were Facebook, Twitter, WhatsApp, Instagram, You tube, Linked in and most current one is Tick-tock.

Nawi et al. (2019) also found out that Malaysian businesses used Facebook, Twitter, and Instagram social media platforms. Closer to Kenya, Rumo, J., & Ndiege, A. (2019) expressed that SMEs were strategically positioning themselves to benefit in social

media through using platforms such as Facebook, Twitter, WhatsApp, Instagram, You tube.

4.9.1 Model Summary of Social Media Management

The study conducted model summary as a type of regression analysis. The purpose of this model was to examine the influence that social media management had over market access**.** Table 4.15 gives the findings generated.

Table 4.15

Model Summary of Social Media Management

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	.739[a]	.547	.544	3.05335	1.113

a. Predictors: (Constant), Social Media Management
b. Dependent Variable: Market Access

The findings indicate that social media management had an R-value of 0.739 while the R-square was 0.547. This indicates that ICT applications had a 54.7 % significance on market access. The Durbin-Watson value was 1.113 which indicated that there was a positive correlation between social media management and market access. What these results illustrated was that social media management played a 54.7% role towards enabling SMEs get access to various markets.

4.9.2 Analysis of Variance of ICT applications

The study conducted ANOVA of social media management as a type of regression analysis. The purpose of this model was to test the hypothesis. The study had a null hypothesis that there was no significant relationship between social media management and market access of SMEs in Trans Nzoia County, Kenya. Table 4.16 gives the findings.

Table 4.16

ANOVA of Social Media Management

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	43.270	1	43.270	4.641	.035[b]
	Residual	652.605	71	9.323		
	Total	69.875	72			

a. Dependent Variable: Market Access

b. Predictors: (Constant), Social Media Management,

Table 4.16 indicates that the F-statistic was 4.641 and the significance value was 0.035 which was below than 0.05. The findings caused the study to reject null hypothesis that there was no significant relationship between social media management and market access of SMEs in Trans Nzoia County, Kenya. The study found out that though many SMEs were using social media, they struggled with ensuring its management was effective. Many complained that it took a lot of organization time to create posters and videos, track clients' communications and also updating status once in a while. With time, there have been so many social media platforms which keep on increasing in number. The most recent one is Tick-tock which required uploading of short meaningful videos by the SMEs. In addition, it has become a challenge to monitor the social media staff within the SME.

4.10 Descriptive Statistics of Cyber Security

Cyber security was the last independent variable. The study asked various questions both from the questionnaire and also in the interview sessions. Cyber Security had various indicators such end-point security, malware such as viruses, network security, cloud security, ICT applications security and internet security. The questionnaire was closed ended which was answered by ICT officers, compliance officers and marketing officers.

Table 4.17

Descriptive Statistics of Cyber Security

Statements N=63	1	2	3	4	5	Mean
Clear way of testing any business e-commerce applications and websites	10(16%)	26(41%)	0(0%)	27(43%)	0(0%)	2.70
Equipping our computers with anti-virus	9(14%)	26(42%)	2(3%)	24(38%)	2(3%)	2.75
Safety of inventions from theft by use of cloud storage security.	29(46%)	12(19%)	9(14%)	6(10%)	7(11%)	2.21
Passwords put into place so as to access the organization's internet	26(41%)	12(19%)	4(6%)	13(21%)	8(13%)	2.44
Communication done without information leak to a third party due to end-point security	2(3%)	25(40%)	0(0%)	33(52%)	3(5%)	3.16
Random checks made on our SME's network to improve its security	9(14%)	4(6%)	0(0%)	15(24%)	35(56%)	4.00

According to Table 4.17, SMEs performed constant random checks on their network to improve their security against leakage of information to third parties. Majority whom included 35(56%) and 15,(24%) of the respondents strongly agreed and agreed respectively to this statement on a mean of 4.00. Nevertheless, the respondents contradicted on a mean of 2.21 that SMEs were able to keep safe their inventions from theft by use of cloud storage security. In addition, respondents contradicted on a mean of 2.44 that there were passwords put into place so as to access the organization's internet hence preventing any form of misuse by unauthorized people.

These results meant that SMEs were very far from ensuring that their goods and services innovations were secure even by storing the copies on clouds security. The problem began when SMEs did not adequately secure their internet from access to authorized people. This created a loophole for people to steal their innovations directly from them. This made their efforts futile and frustrating especially where they launched various goods and services to find out the market was already supplied with similar goods and services. When the market was supplied with these goods, marketing them turned out unsuccessful. Osano (2019) advised that as Kenyan SMEs are strategizing to roll out goods and services in global markets, they should ensure that they do it in a very discrete manner to avoid leakage of information through unauthorized access of their internet.

The study had a chance to interview general managers of the sampled SMEs. One of the interview guide sections was related to cyber security. The managers interviewed were 9 and hence given codes beginning from 'A' to 'I'. The study requested the managers to highlight the types of cybersecurity risks that their SMEs were exposed to when using ICT to run its business operations. The responses gathered mainly named

hacking, loss of money and poor reputation among its clients. For example, a particular managers C stated the following,

"*When dealing with any online business transaction, cyber risk is nearer than you think. You may think, you are safe until you find yourself a culprit of leakages that cost you money and bad reputation among your customers''*

These were concerns that limited SMEs in Nyeri from adopting e-procurement as raised by Gitonga (2021). According to Gitonga (2021), SMEs had fallen into the trap of hacking which had resulted to siphoning of their revenues when selling or buying commodities through online platforms. This resulted to many reverting back to physical procurement.

The study further implored the managers to state various policies put into place to strengthen cybersecurity initiatives among the staff. The managers G, H and I indicated that there were policies like firing on the stop when a staff is found out to have shared any computer passwords with their fellow staff or outsiders. Managers A to E, stated that staff passwords were changed monthly to avoid hacking. Manager F had rather peculiar response stating that

''In our SME, everyone is treated as a suspect of cyber security. You may wake-up to find that a staff has become greedy and wants all the organizations' money. How do you treat such employees? To avoid that, we ensure that there is a constant job rotation in departments or branches to avoid the staff being too familiar with the operations''.

In contradiction with the findings, Haneem et al. (2019) condemns the toxic environment that employees work in organizations and always treated as suspects towards ICT. According to Haneem et al. (2019), trust has to be cultivated since ICT

cannot actualize without people. Lee and Falahat (2019) interjects and advises that when digitalizing, organizations should ensure key information is restricted to few trusted employees since not every employee can be trusted. Some employees are just in the firm to spy on ideas so as to sell to other competing firms in the markets.

After discovering the diverse answers, the study requested the respondents to name the challenges that were faced by their SME in relation to having reliable cybersecurity system. The managers named untrustworthy employees, lack of funds to purchase various ICT infrastructure, stagnant policies, and evolving cyber threats. Leebouapao et al. (2020) supports these claims that for e-commerce to develop, organizations need to appreciate the fact that as time proceeds, so is the cyber threat evolving hence policies need to keep on changing.

One outstanding remark made by Manager E in regards to stagnant policies was that, ‘‘*There is need to appreciate the effort played by ICT staff in fighting cyber threats. In my organization, an ICT officer has once secretly created a simulation cyber threat to check how the entire ICT system was equipped to fight the threat. The entire operations were shut down for 5 hours as ICT department sought for clearance to overrule various old policies as they thought of solutions. To cut the long story short, our firm discovered we were nowhere near towards having a reliable system and incase of such as threat actualizing, the firm would be shut down completely’’.*

The study further asked the managers to name some of the training programs offered to staff to ensure they are updated on current cyber threats. The managers gave various responses such as weekly departmental briefs on the emerging cyber issues, sponsoring of ICT champions to trainings after every 3 months from external sources; and periodical mandatory monthly organizational e-training to all staff. In agreement, Mäki

and Toivol (2021) proclaims that SMEs cannot survive global markets unless they make it a habit to offer ICT trainings. These trainings should be related to cyber threats and offered to every staff since as long as one is a staff in an organization, they can be knowingly and unknowingly used as entry portal to the firm's ICT system by hackers.

The last question asked by study under this segment required the managers to elaborate the protocol used in their organization when reporting on a suspected cyber threat such as hacking. Every manager gave different protocols but what was outstanding was a three-step process. The first step was switching off the computer, followed by immediately letting your departmental colleagues and supervisor that someone has hacked your account so that they can also switch off their computers. The third process was informing the ICT department to neutralize the threat. In agreement with the findings, Malatji et al. (2019) stated that a key element in cybersecurity framework is the ability of fast reaction of employees when they suspect of hacking which is also known as socio technical system.

4.10.1 Model Summary of Cyber Security

The study conducted model summary as a type of regression analysis. The purpose of this model was to examine the influence that cyber security had over market access. Table 4.18 gives the findings generated.

Table 4.18

Model Summary of Cyber Security

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	.577[a]	.334	.522	3.10486	1.971

a. Predictors: (Constant), Cyber Security

b. Dependent Variable: Market Access

The findings indicate that cyber security had an R-value of 0.577 while the R-square was 0.334. This indicates that cybersecurity had a 33.4% significance on market access. The Durbin-Watson value was 1.971 which indicated that there was a positive correlation between cyber security and market access. What these results illustrated was that cyber security played a 33.4% role towards enabling SMEs get access to various markets. This low contribution was because many SMEs had not incorporated the idea of cyber security in their system. Majority of SMEs had not invested in infrastructure, had low qualified ICT staff and did not have any significant emergency budget set aside to sort out any cyber threats taking place and that could paralyze the SMEs operations. Wang et al. (2016) also indicated that lack of confidence in mobile reservation systems due to frequent susceptibility to hacking made hotels not invest in its infrastructures and allocate enough budget for its expenses.

4.10.2 Analysis of Variance of Cyber Security

The study conducted ANOVA of cyber security as a type of regression analysis. The purpose of this model was to test the hypothesis. The study had a null hypothesis that there was no significant relationship between cyber security and market access of SMEs in Trans Nzoia County, Kenya. Table 4.19 gives the findings.

Table 4.19

ANOVA of Cyber security

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.063	1	21.063	2.185	.044[b]
	Residual	674.812	71	9.640		
	Total	695.875	72			

a. Dependent Variable: Market Access

b. Predictors: (Constant), Cyber Security

Table 4.19 indicates that the F-statistic was 2.185 and the significance value was 0.044 which was below than 0.05. The findings caused the study to reject null hypothesis that there was no significant relationship between cybersecurity and market access of SMEs in Trans Nzoia County, Kenya. The results also indicated that cybersecurity was still at its infant stage in Kenya and most SMEs staff were not well versed with its role in their operations. This resulted to negligence and completely reluctant to make efforts in incorporating it in the operations of the organization. Ndeda and Odoyo (2019) also agreed that in Kenyan business context, cyber threats were still not well conceptualized in many organizations. This made it even harder to incorporate cyber security since it was hard to invest money in something that was not well understood.

4.11 Multiple regression Analysis

The study also examined various multiple regression analyses to establish the influence between ICT on market access by SMEs in Trans Nzoia County, Kenya. Various Multiple regression analyses conducted were Model summary, ANOVA and regression coefficients.

4.11.1 Model Summary of ICT's Influence on Market Access

This analysis was relevant to distinguish whether when all ICT variables (ICT applications, data management, social media management and cybersecurity) when combined had any influence on market access. The findings are shown on Table 4.20.

Table 4.20

Model Summary of ICT's influence on Market Access

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	.912[a]	.831	.817	3.06220	1.962

a. Predictors: (Constant), Cyber Security, Social Media Management, Data Management, ICT Applications
b. Dependent Variable: Market Access

The findings on Table 4.20 indicate that the R-value was 0.912 while the R-square value was 0.831. This indicates that ICT had 83.1% influence on market access. The Durbin-Watson value was 1.962 which indicated that there was a positive correlation between ICT and market access. What these results illustrated was that ICT played 83.1% role towards enabling SMEs get access to various markets. That meant that as long as SMEs would wish to expand their business and access new markets, ICT incorporation cannot be undermined. In this period of time especially when covid-19 is present, SMEs should strive to integrate ICT in their operations. The study gathered that many SMEs had not

fully accepted ICT due to cultural reasons, lack of resources, inadequate skilled ICT staff and unclarity on how they would transit towards a fully-fledged ICT operationalized SME. Walden et al. (2020) also notes that many organizations have failed to link ICT to their vision and objectives until when late. According to Walden et al. (2020), raising strategic leadership capacity enables them to become innovative and smoothly transit to digitalization.

4.11.2 ANOVA of ICT's Influence on Market Access

The study conducted ANOVA analysis. This analysis would enable the study ascertain whether ICT had an influence on market access or not. The findings are shown on Table 4.21.

Table 4.21

ANOVA of ICT's influence on Market Access

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	67.612	4	16.903	1.803	.013[b]
	Residual	628.263	68	9.377		
	Total	695.875	72			

a. Dependent Variable: Market Access

b. Predictors: (Constant), Cyber Security, Social Media Management, Data Management, ICT Applications

Table 4.21 indicates that the F-statistics was 1.803 while the significance level was 0.13. Therefore, since the significance value was less than 0.13, the study concluded that ICT had an influence on SMEs' market access. This means that SMEs have an obligation of ensuring that they are able to install ICT infrastructure so as to enjoy the benefits of accessing new markets while at the same time preserving their old markets. The study discovered that financial constraints were a major limiting factor towards integrating

ICT for market access. In agreement with this finding, World Bank (2020) encouraged innovativeness in raising ICT financing such as fund drives and ploughing back profits. Nevertheless, as they consider ICT, the policies put into place, laws, tariffs, custom duties and quotas gives SMEs a specific direction to follow so that the ICT installed is able to assist towards fulfilling these market access factors. For example, if an SME would want to access North Korean market, it needs to understand the laws and regulations on internet restrictions. This enlightenment would enable the SME use other options since the clients in that nation are not allowed to have access to internet so as to buy your goods and services.

4.11.3 Regression Coefficients of ICT's Influence on Market Access

The study conducted regression coefficients analysis to provide the coefficients to the general model of study. Table 4.22 gives the findings.

Table 4.22

Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	14.807	4.336		3.415	.001
ICT Applications	.187	.180	.167	1.039	.003
Data Management	.045	.192	.036	.234	.016
Social Media Management	.177	.101	.209	1.745	.006
Cyber Security	.003	.204	.003	.017	.007

a. Dependent Variable: Market Access

According to Table 4.22, ICT applications had a β= 0.187 with a p-value of 0.003; Data management had a β= 0.045 with a p-value of 0.016; Social media management had a β= 0.177 with a p-value of 0.006; Cyber security had a β= 0.003 with a p-value of 0.007. Initially the study had a general model which was; Market Access = C + β1X1 + β2IX2+ β3IX3+ β3X4 + e where XI was ICT applications, X2 was data management, X3 was social media management, X4 was cyber security, C was constant coefficient, β was slope coefficient of independent variables and Ɛ was error term.

When equated with the coefficients, the general model was Market Access = 14.807C +0.187X1+0.045X2+0.177X3+0.003X4+ 4.336e. The results showed that when added one unit of X1, X2, X3, X4, market access increased by 14.807+0.187+0.045+0.177+0.003.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The general objective of this study was to assess the influence of information communication technology on market access by SMEs in Trans Nzoia County, Kenya. The specific objectives were to examine the influence of information communication technological applications, data management, social media management, and cyber security on market access by SMEs in Trans Nzoia County, Kenya. The study was guided by three theories which were the unified theory of acceptance and use of technology, theory of administrative behavior and socio-technical systems theory. Descriptive research design was used in the study. The target population was 37 SMEs whose respondents were 92 ICT officers, 81 compliance officers, and 77 marketing officers. The study sampled the 37 SMEs using simple random sampling method to obtain 11 SMEs. The respondents were also sampled using simple random sampling method to get 11 general managers, 28 ICT officers, 24 compliance officers, and 23 marketing officers. Data collection was done using interview guides and closed-ended questionnaires.

5.2 Summary of Results

The study provided summary of the results gotten after analysis was conducted. The results analyzed on each variable are provided in section 5.2.1 to 5.2.5.

5.2.1 ICT Applications

ICT applications was an independent variable. The study asked various questions both from the questionnaire and also in the interview sessions. ICT applications had various indicators such as electronic mails, internet and intranet, electronic banking, electronic commerce, telephones, mobile phones and video calls (google meet, zoom etc.). The findings indicated that SMEs were adopting technology to operate E-procurement so as to get buyers and suppliers in Kenyan and international markets (mean of 4.92). Nevertheless, the respondents disagreed that there were ICT trainings and refreshers courses offered by their SME especially in relation to new ICT applications such as electronic commerce (mean of 2.10).

The interview findings indicated that there were challenges such as low user skills when using apps like zoom, hanging, and forgetting passwords while using ICT applications. The findings further indicated that ICT Applications had an R-value of 0.854 while the R-square was 0.731. This indicates that ICT applications had a 73.1 % significance on market access. The Durbin-Watson value was 1.421 which indicated that there was a positive correlation between ICT applications and market access. The F-statistic was 3.930 and the significance value was 0.005 which was below than 0.05.

5.2.2 Data Management

Data management was an independent variable. The study asked various questions both from the questionnaire and also in the interview sessions. Data management had various indicators such as accounting systems, inventory control systems, marketing technology systems, customer relationship management systems, analytics systems and business intelligence systems. The findings indicated that SMEs had implemented digitalization in export management (mean of 4.76). However, the respondents

disagreed that the use of business intelligence system had enabled this SME management make informed decision based on the current market situations (mean of 2.11).

The interview findings indicated that SMEs had a database of current and potential clients, they were able to map out the location where there was high demand of their goods and services to supply ahead of the competitors; and they were able to come up with unique marketing strategies and campaigns in which there was a guarantee of success. Further on, the findings indicate that data management had an R-value of 0.788 while the R-square was 0.622. This indicates that data management had a 62.2 % significance on market access. The Durbin-Watson value was 1.300 which indicated that there was a positive correlation between ICT applications and market access. The F-statistic was 2.235 and the significance value was 0.039 which was above 0.05.

5.2.3 Social Media Management

Social media was an independent variable. The study asked various questions both from the questionnaire and also in the interview sessions. Social media management had various indicators such as creating media content, monitoring online conversations, work in partnership with influencers, customer care, making connections and data analysis. The study discovered that social media platforms such as Facebook had boosted SMEs to showcase their goods and services to both new local and foreign markets (mean of 4.92). However, it was discovered many SMEs did not involve client's feedback when launching new products as an improvement measure of utilizing social customer relationship management (mean of 3.00).

In the interview, the study found out that social media required a lot of time so as to respond to client's questions as they arose; some employees took this time to login to

their social media accounts instead of thinking of other solutions they could use to improve the firm's social media platforms; late responses leading to lose of opportunities; and high internet charges due to frequent use of social media platforms to upload videos. The findings further indicated that social media management had an R-value of 0.739 while the R-square was 0.547. This indicates that ICT applications had a 54.7 % significance on market access. The Durbin-Watson value was 1.113 which indicated that there was a positive correlation between social media management and market access. F-statistic was 4.641 and the significance value was 0.035 which was below than 0.05.

5.2.4 Cyber Security

Cyber security was the last independent variable. The study asked various questions both from the questionnaire and also in the interview sessions. Cyber Security had various indicators such end-point security, malware such as viruses, network security, cloud security, ICT applications security and internet security. SMEs performed constant random checks on their network to improve their security against leakage of information to third parties (mean of 4.00). Nevertheless, the respondents contradicted on a mean of 2.21 that SMEs were able to keep safe their inventions from theft by use of cloud storage security.

The interview results indicated that hacking, loss of money and poor reputation among its clients were the main cyber threats issues that SMEs faced. These issues were further deteriorated by untrustworthy employees, lack of funds to purchase various ICT infrastructure, stagnant policies, and evolving cyber threats. The findings indicate that cyber security had an R-value of 0.577 while the R-square was 0.334. This indicates that cybersecurity had a 33.4% significance on market access. The Durbin-Watson

value was 1.971 which indicated that there was a positive correlation between cyber security and market access. F-statistic was 2.185 and the significance value was 0.044 which was below than 0.05.

5.2.5 Market Access

Market Access was the dependent variable. The study asked various questions both from the questionnaire and also in the interview sessions. Market Access had various indicators such as tariffs, custom duties, quotas, prices, policies on markets, laws and regulations. The findings indicated that ICT usage had significantly improved market access of the SMEs. Fifty (79%) of the respondents strongly agreed to this on a mean of 4.59. Nevertheless, cyber security had lowest significance towards improvement of market access of the SMEs. Twenty-three (36%) of the respondents disagreed with this on a mean of 3.03.

The study conducted interviews on nine managers in the SMEs. The interview findings indicated that SMEs were not allowed to send their goods via air transport due to grounding of planes hence shipping their goods which took months leading to massive losses. In addition, the government suspended all social gatherings which made it almost impossible to set up trade fairs or partner with the government. The loss of touch with the potential clients led to low sales and unstable business prospects hence limiting market access. The government also directed that people should work from home making it hard for clients to come to the physical location for direct purchasing. This made it hard for the SMEs to have mega sale since most clients who trusted the online platform bought goods in small quantities.

5.3 Conclusions of the Study

On ICT applications, the study discovered that the only training offered to all staffs was on orientation on the SMEs systems during their recruitment. From there hence forth, it was a personal initiative of the staff to update themselves by observations, asking their colleagues or through you tube tutorials on the ICT developments. This left many speculations and different school of thoughts on how to implement new changes to their roles. In addition, it was established that SME owners who were mainly the directors, were not actively engaged in ensuring that ICT applications were adopted fully into the SMEs. This role was left out to managers with SME owners being limited to only making decisions and not playing any part in the implementation of these decisions towards promoting market access.

On data management, the decisions made by the SME management did not originate from reliable sources such as business intelligence systems but rather on personal experiences, emotions, and available options that were cheap. This is why SMEs' marketing initiatives were not working as required and hence resulted to SMEs making losing markets accessed since they did not consider client's needs but rather what they decided should be in place. In addition, SMEs did not fully understand or simply did not value the relevance of data towards making decisions that related to market access. It was further found out that though the management team had back-up of data, they turned complete blind eye towards it and made decision that looked best fit for them. This resulted to weak policies that did not provide help towards improving the current marketing initiatives SMEs had.

On social media management, the study established that SMEs did not make improvements of new goods and services based on customer feedback but rather on other factors. Failure to include customer's opinion when innovating new goods and

services made SME lose touch with reality leading to irrelevant goods that the customers did not require. This led to losses after losses hence limiting their chances of survival in the accessed market. The study further found out that though many SMEs were using social media, they struggled with ensuring its management was effective. Many complained that it took a lot of organization time to create posters and videos, track clients' communications and also updating status once in a while.

On cyber security, the study discovered that SMEs were very far from ensuring that their goods and services innovations were secure even by storing the copies on clouds security. The problem began when SMEs did not adequately secure their internet from access to authorized people. This created a loophole for people to steal their innovations directly from them. This made their efforts futile and frustrating especially where they launched various goods and services to find out the market was already supplied with similar goods and services. When the market was supplied with these goods, marketing them turned out unsuccessful. The results also indicated that cybersecurity was still at its infant stage in Kenya and most SMEs staff were not well versed with its role in their operations. This resulted to negligence and completely reluctant to make efforts in incorporating it in the operations of the organization.

On market access, the study concluded that the loopholes in cyber security had raised concerns that were hindering the SMEs to access and maintain established markets. The ICT departments was not performing well in ensuring security of SMEs data was maintained. This resulted to unsecure payment systems, periodical hacking of the systems thereby causing loss of intended product innovations to competitors and unauthorized access to SMEs' information. The general model was Market Access = 14.807C +0.187X1+0.045X2+0.177X3+0.003X4+ 4.336e. The results showed that

when added one unit of X1, X2, X3, X4, market access increased by 14.807+0.187+0.045+0.177+0.003.

5.4 Recommendations of the Study

The study recommends that SMEs' management should introduce periodical training on how to use ICT applications. The management should not assume that SME staff know how to use these applications. This assumption is causing different school of thoughts with slow learners getting limited in the process. Directors should take responsibility leading the way on how to implement some of the policies related to areas such as ICT applications. When junior staff see that directors have also began an initiative to ensure implementation of ICT is done, they will be motivated and interested to follow.

The board of management should introduce policies that guide them in decision making. They could consult the services of specialists on developing systems and processes that should be followed when decision is being made. These systems and processes should be anchored on facts and figures generated from the SMEs reports and business intelligence systems. SMEs should offer more training on all job levels to ensure they really understand the relevance of data and its management towards decision making.

The management should also develop regulations on the procedures of improving goods and services. They should introduce new regulations that allow decisions to be made with partial consideration of client's feedback. SMEs should also employ more staff to manage their social media handles. The more the organization is growing, the more it will require to advertise and market its goods and services. Therefore, there should be recruitment of staff that will assist in lessening the burden of responsibilities

related to creating posters and videos, tracking clients' communications and also updating status once in a while.

The SMEs' management should introduce strict policies on password confidentiality. They should introduce new disciplining methods to staff that are discovered to have violated this rule. The management should also employ qualified database administrators whose role would be maintaining database security and servicing. Communications Authority of Kenya [CAK] should partner with SMEs to provide trainings on cybersecurity. The trainings should equip SMEs with foundational information on what cybersecurity is all about. This would enable SMEs comprehend on what they are up against especially when interacting with ICT.

5.5 Suggestions of Future Research

This study assessed the influence of ICT on market access by SMEs in Trans Nzoia County, Kenya. Future studies should expound more to how ICT was helping SMEs gain access to markets in other regions of Kenya.

The study examined four ICT factors such as ICT applications, data management, social media management and cyber security. There is need to include other factors such ICT staff skills in future studies.

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APPENDICIES

Appendix I: Authorization Letter

Tom Wekesa Musungu

P.O Box 1348-30200,

Kitale- Kenya.

Email: tmwekesa@gmail.com

The General Manager,

…….

Trans Nzoia County.

Dear Sir/ Madam.

RE: APPROVAL TO CONDUCT A RESEARCH STUDY IN YOUR ORGANIZATION

I am a post graduate student in Kenya Methodist University (KeMU) school of business and economics pursuing masters of business administration (marketing option) program. In my course, one is required to undertake a research study as a qualification to graduate. I am therefore currently undertaking a study on the influence of information communication technology on market access by small and medium-sized enterprises in Trans Nzoia County, Kenya.

I have identified your organization as one of the key study sites. In your organization, the study intends to gather data from the general manager, ICT, accounting and marketing officers. The information to be gathered will be in an interview and questionnaire format as attached with this letter. Kindly allow the study to be conducted in your organization.

Kind regards
Tom Wekesa Musungu
BUS-3-6702-2/2013
Mobile no: 0720955698

Appendix II: Introduction Letter

Dear Participant,

I am a student currently enrolled in the masters of business administration (marketing option) program at Kenya Methodist University (KeMU) school of business and economics and am in the process of writing my research thesis. I invite you to participate in a research study entitled as influence of information communication technology on market access by small and medium-sized enterprises in Trans Nzoia County, Kenya.

Your responses will remain confidential and anonymous. Data from this study will be kept under secure systems and reported as a collective effort. If you agree to participate in this study, please answer the questions on the questionnaire as best you can. However, your participation in this study is completely voluntary. Please return the questionnaire on completion.

Your faithfully

Tom Wekesa Musungu

BUS-3-6702-2/2013

Appendix III: Interview guide for general managers

Instructions

1. Ensure the interviewee has answered the questions as exhaustively as possible
2. Note down their responses in a book

SECTION A: PERSONAL INFORMATION

1. What is your job position?

2. How long have you worked in this organization?

SECTION B: ICT APPLICATIONS AND MARKET ACCESS BY SMES

1. Kindly explain how digitalization such as use of emails and internet has influenced the growth and globalization of your SME in both physical and online business ventures?

2. Please describe the various ICT apps such as zoom applications, e-banking, among other challenges experienced in your SME during normal operations?

3. Enlighten the study on the measures that your SME has put to ensure that the various income generated through online businesses are incorporated as part of business?

4. Elaborate the role that business owners play in decision making on the ICT applications infrastructure adoption in this SME?

5. Explain some of the factors that influenced your SMEs to adopt ICT?

DATA MANAGEMENT AND MARKET ACCESS BY SMES

1. Kindly describe the various data management measures such as accounting systems, inventory control systems, analytics systems and marketing systems put into place by your SME as it expands its e-commerce to global perspectives?

2. Highlight how digitalization on market technological systems has enabled your SME to acquire competitive advantage in both local and global markets?

3. Elaborate the various ways in which your SMEs gets information on goods, clients, market analysis, taxes, and other charges so as to access to new markets?

4. Highlight on various ways that your SME manages payments on digital financial services like POS to cause growth?

5. Explain the various training offered to your staff to ensure that they are equipped with data management skills?

SOCIAL MEDIA MANAGEMENT AND MARKET ACCESS BY SMES

1. Explain how your SME has been able to motivate its social media management team to ensure they deliver?

2. Highlight the cost-benefit analysis of using social media platforms to access markets?

3. Briefly describe the challenges your SME faces on social media adoption?

4. Elaborate the strategic positioning that your SME has put into place through use of social media to maximize in accessing new markets?

5. Briefly indicate some of social media platforms that you SME engages in attempt to access various markets?

CYBER SECURITY AND MARKET ACCESS BY SMES

1. Highlight the types of cybersecurity risks that your SME is exposed to when using ICT to run its business operations?

2. Explain the various policies put into place by this SME to strengthen cybersecurity initiatives among the staff?

3. Describe the challenges faced by this SME in relation to having reliable cybersecurity system?

4. Briefly state the training programs offered to staff to ensure they are updated on current cyber threats?

5. Elaborate the protocol used in the organization when reporting on a suspected cyber threat such as hacking?

MARKET ACCESS BY SMES

1. Elaborate what are the various strategies that your organization has introduced to handle problems related to SMEs access to markets?

2. Highlight some of the market access related challenges that your SME has endured as a result of covid-19 lockdown measures put by the government?

3. Explain the procedures used by your SME to venture into global markets?

4. Enlighten the study on how the SME measures its performance related to accessed markets through use of ICT?

5. Kindly describe the influence of paying taxes, export and import duties promptly on gaining more access of internal markets?

Appendix IV: Questionnaires for ICT, compliance and marketing officers

Instructions

1. Please answer the questions to the best of your knowledge
2. Hand over the filled in questionnaires to the research officer when you complete answering the questionnaire

SECTION A: PERSONAL INFORMATION

1. What is your job position?

   a) ICT officer ☐

   b) Compliance officer ☐

   c) Marketing officer ☐

2. How long have you worked in this organization?

   a) Less than 1 year ☐

   b) 1-2 years ☐

   c) 2-5 years ☐

   d) 5-10 years ☐

   e) Over 10 years ☐

3. What brand of computer does your SME use?

_____

SECTION B: ICT APPLICATIONS AND MARKET ACCESS BY SMES

This section has statements regarding the influence of ICT applications and market access by SMEs. Please respond according to what you feel is the correct answer through ticking.

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1.	There are strategies applied by this SMEs such as marketing through holding video calls with clients in international markets.					
2.	Our SME has been adopting technology to operate E-procurement so as to get buyers and suppliers in Kenyan and International markets					
3.	This SME ensures payments are done in a secure ICT application such as e-banking					
4.	There is time saving done by use of mobile phones to communicate with clients in various markets					
5.	Installation of internet has promoted the need for this SME staff to submit their marketing reports through e-mails and feedback is given without wasting time.					
6.	There are ICT trainings and refreshers courses offered by this SME					

	especially in relation to new ICT applications such as electronic commerce.					

SECTION C: DATA MANAGEMENT AND MARKET ACCESS BY SMES

This section has statements regarding the influence of data management and market access by SMEs. Please respond according to what you feel is the correct answer through ticking.

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1.	We have implemented digitalization in export management in our SME					
2.	This SME has provided competition to other SMEs through use of customer relationship management system to ensure that they protect their markets.					
3.	There has been entrepreneurial marketing to improve performance of our SME					
4.	Inventory control systems have enabled this SME distribute bought goods to clients without wasting time					
5.	The use of business intelligence system has enabled this SME management make informed decision based on the current market situation					

6.	This SME has liaised with various firms to provide current market technology systems that have enabled reliability in market access.					

SECTION D: SOCIAL MEDIA MANAGEMENT AND MARKET ACCESS BY SMES

This section has statements regarding the influence of social media management and market access by SMEs. Please respond according to what you feel is the correct answer through ticking.

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1.	There are various social media platforms to boost marketing initiatives in our SME					
2.	Our SME has accessed new markets after consulting the services of influencers to promote our goods and services in social media platforms					
3.	Social media platforms such as Facebook have boosted our SME to showcase our products to both new local and foreign markets					
4.	We involve client's feedback when launching new products as an improvement measure of utilizing social customer relationship management					

5.	The SME is able to make valuable connections with new clients through social media platforms					
6.	This SME puts emphasis on social media managers to monito online conversations so that clients complain, appreciation and demands are amicably handled on time.					

SECTION E: CYBERSECURITY AND MARKET ACCESS BY SMES

This section has statements regarding the influence of cybersecurity and market access by SMEs. Please respond according to what you feel is the correct answer through ticking.

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1.	There is a clear and precise way of testing any business e-commerce applications and websites before this SME engages with in both international and local markets					
2.	Loss of clients' data have been reduced due to equipping our computers with anti-virus that fights against any computer viruses.					
3.	The SME has been able to keep safe its inventions from theft					

	by use of cloud storage security.					
4.	There have been passwords put into place so as to access the organization's internet hence preventing any form of misuse by unauthorized people					
5.	Board of management have been able to communicate to each other without information leak to a third party due to end-point security.					
6.	There are constant random checks made on our SME's network to improve its security against leakage of information to third parties.					

SECTION F: MARKET ACCESS BY SMES

This section has statements regarding market access by SMEs. Please respond according to what you feel is the correct answer through ticking.

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1.	ICT applications use have caused SMEs to gain more access to markets					
2.	Social media management has caused SMEs to gain more access to markets					
3.	Data management has caused SMEs to gain					

	more access to markets					
4.	Cybersecurity has caused SMEs to gain more access to markets					
5.	Our SME is able to maintain gained markets through adhering to market regulation such as prompt paying of taxes					
6.	There is a team employed to always conduct thorough research on new markets so as to establish various requirements verses opportunities available before this SME commits to the new market					

Appendix V: Targeted SMEs in Trans Nzoia County

Supermarkets	Gigamatt Supermarket, Khetia supermarkets, Suam Supermarket, Trans Mattresses supermarket, R.B Shah Supermarket and Soy Trading supermarkets, Elgon mini market ltd
Hotels and restaurants	Trans Nzoia county resort hotel, Mimi house, Africana Yard, Alakara Hotel, Vision Gate Hotel, Palm Restaurant, Cranes Suites, Mid Africa Hotel, Lokitela Farm Hotel, Elgon View Resort, Swara Resort club, Skynest County Hotel, Hotel Aturukan, Cranes Haven
Manufacturing firms	Kitale industries ltd, Dynapharm, Turner Barker and Hatfield (1968) ltd, Data world technologies ltd
Assembly firms	Westfield motors ltd, CMC motors group Ltd
Whole sale and retail outlets	Swam wines ltd, Alrood enterprises, Elgon drappers ltd, Hira traders, Sarji enterprises
Processing firms	Kenya Seed company, Elgon Tea Factory, Kapsara Tea Factory, Western Seed Company, K.C.C

Appendix VI: Research Introduction Letter

KENYA METHODIST UNIVERSITY
P. O. Box 267 Meru - 60200, Kenya
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Email: deanrd@kemu.ac.ke

DIRECTORATE OF POSTGRADUATE STUDIES

July 21, 2021

Commission Secretary,
National Commission for Science, Technology and Innovations,
P.O. Box 30623-00100,
NAIROBI.

Dear Sir/Madam,

RE: TOM WEKESA MUSUNGU (REG. NO. BUS-3-6702-2/2013)

This is to confirm that the above named is a bona fide student of Kenya Methodist University, in the Department of Business Administration, undertaking a Master's Degree in Business Administration. He is conducting research on: **"Influence of Information Communication Technology on Market Access by Small and Medium-sized Enterprises in Trans Nzoia County, Kenya"**. We confirm that his research proposal has been defended and approved by the University.

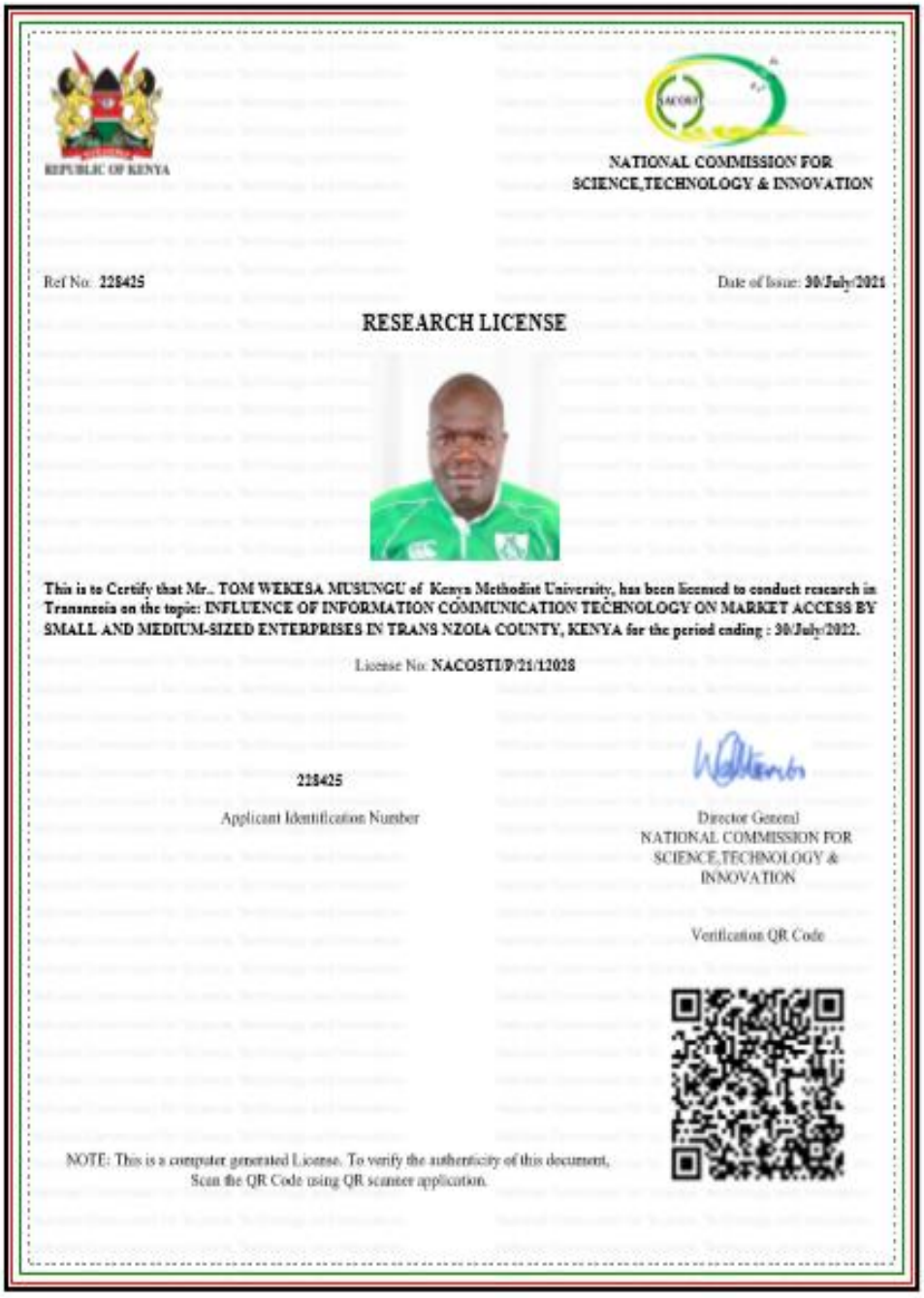
In this regard, we are requesting your office to issue a permit to enable him collect data for his research.

Any assistance accorded to him will be appreciated.

Thank you.

Dr. John Muchiri, Ph.D.
Director, Postgraduate Studies
Cc Dean SBUE
CoD. Business Administration
Postgraduate Co-ordinator
Supervisor

Appendix VII: NACOSTI Research Permit



REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 228425

Date of Issue: 30/July/2021

RESEARCH LICENSE

This is to Certify that Mr.. TOM WEKESA MUSUNGU of Kenya Methodist University, has been licensed to conduct research in Transnzoia on the topic: INFLUENCE OF INFORMATION COMMUNICATION TECHNOLOGY ON MARKET ACCESS BY SMALL AND MEDIUM-SIZED ENTERPRISES IN TRANS NZOIA COUNTY, KENYA for the period ending : 30/July/2022.

License No: NACOSTI/P/21/12028

228425

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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