

**INFORMATION TECHNOLOGY AND PERFORMANCE OF SMEs IN NAIROBI  
COUNTY, KENYA**


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## DECLARATION

I hereby declare that this research project is my own work and effort and that it has not been submitted anywhere for any award.

Signature: .....  ..... Date: .....17<sup>th</sup> October, 2023.....

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This research proposal has been submitted for examination with my approval as the University supervisor.

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## **DEDICATION**

I dedicate this research project to my late mum Mrs. Margaret Kithembe, my brother Mr. Robert Kithembe and my sisters for being my constant source of strength and inspiration.

## **ACKNOWLEDGEMENT**

I give thanks to God for providing me with the stamina, health, tools, and willpower needed to finish my study endeavor.

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## LIST OF ABBREVIATIONS

<b>CBK</b>	Central Bank of Kenya
<b>CGTMSE</b>	Credit Guarantee Fund Trust for Micro and Small Enterprises
<b>CII</b>	Council of Institutional Investors
<b>CIS</b>	Customer Integrated System
<b>CRISIL</b>	Credit Rating Information Services of India Limited
<b>DV</b>	Dependent Variable
<b>EFT</b>	Electronic Funds Transfer
<b>GDP</b>	Gross Domestic Product
<b>ICT</b>	Information and Communication Technology
<b>ILO</b>	International Labour Organization
<b>IT</b>	Information Technology
<b>IV</b>	Independent Variable
<b>KIPPRA</b>	Kenya Institute for Public Policy Research and Analysis
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>KPMG</b>	Klynveild Peat Marwick Goerdeler
<b>LNM</b>	Lipa Na M-Pesa
<b>MSME</b>	Micro and Small-Medium Enterprises
<b>OB</b>	Online Banking
<b>OECD</b>	Organization for Economic Cooperation and Development
<b>PB</b>	Provider of Brand
<b>PHD</b>	Doctor of Philosophy
<b>PMEGP</b>	Prime Minister Employment Generation Programme
<b>ROA</b>	Return on Assets
<b>ROI</b>	Return on Investment
<b>RTGS</b>	Real-Time Gross Settlement
<b>SMBs</b>	Small and Medium Businesses
<b>SME</b>	Small and Medium Enterprise
<b>UN</b>	United Nations

## ABSTRACT

This study, which examined how information technology was used to improve the performance of SMEs in Nairobi County, Kenya, used a descriptive survey research approach. The study's objective was to determine how much SMEs in Nairobi County, Kenya, employ information technology as well as the impact that technology has on SMEs' performance. A survey questionnaire and key informant interviews were used as data gathering methods in the study's mixed-method approach. In order to ensure that respondents from the trade, manufacturing, and services sectors were represented in the study, the participants for the key informant interviews were chosen using a purposive sampling technique, and a sample size of 100 respondents was chosen using a stratified random sampling approach. The investigation in the study was guided by the Resource-Based Theory, the Diffusion of Innovation Theory, and the Disruptive Technology Theory. Quantitative generated statistics were analyzed via means of descriptive and inferential numbers and displayed in frequency tables, charts, percentages, means and graphs for easy interpretation. Qualitative data generated from the key informant interview were analyzed qualitatively using emerging themes but according to the key study objectives. The research determined that SMEs used various forms of information technology tools among them mobile phones, computers, the internet, social media. There was a high level of knowledge and agreement on the use of mobile and online money banking and acceptance of payments through other remote means other than cash. Mobile payments, internet banking, brand promotion, and the success of SMEs were all positively and significantly correlated. Additionally, it was shown that the performance of SMEs was positively and significantly impacted by mobile payments, electronic funds transfers, online banking, and brand promotion. The study concludes that SMEs were using information technology tools to a great extent. ICT use in SMEs has a proven to play a significant role by enabling SMEs to promote their brand and market their products, resulted in higher-quality products and services, resulted in an increase in their companies' market share and reduced the operations costs which subsequently led to an increase in profits in firms. The analysis suggests the county government leadership implement training workshops and demonstrations of the advantages of modern information technology for all the Small Medium Enterprises involved in the industries of trade, manufacturing, and service area to tap fully into the benefits of IT. The report recommends that a thorough investigation of the difficulties that SMEs encounter in adopting IT tools and appliances be carried out in collaboration with other enterprises in Kenya's rural districts.

**Keywords:** *Information technology, growth, efficiency, performance, SMEs, level, effects and Nairobi.*



# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the study

Small and medium-sized businesses (SMEs) create jobs, advance technology, and boost Kenya's Gross Domestic Product (GDP). According to projections, Kenya's GDP grew by 6.4% in 2017, with SMEs accounting for 3% of the growth. (CBK, 2017). SMEs hire a variety of workers, from those with little formal education to PhDs (KNBS, 2016). In Kenya, SMEs account for 98 percent of all enterprises and produce 30 percent of all jobs annually, despite the nation's ongoing employment issue. The cheap cost per job produced in the SMEs subsector is credited with this increase in employment. (KNBS, 2016)

Despite their beneficial effects on the economy of the nation, SMEs encounter numerous difficulties that result in high rates of company failure. As stated by KNBS (2016), in the first year of business, nearly half (46%) of SMEs terminate operations, 29.6 per cent of these failures are caused by insufficient funds. SMEs in Kenya span a wide range of industries, but they share a number of common traits. They operate on a small scale, lack sufficient capital resources and tools, have only limited access to information and markets, and use time-consuming technology (KIPPRA, 2002). Additionally, SMEs are faced by challenges such as; locally based rivalry, issuance of operating licenses', bad infrastructure for transportation, insufficient security for loans, inadequate safety, power failures, a scarcity of supplies or raw materials, local government action, as well as international competition (KIPPRA, 2002; KNBS, 2016). These variables all contribute to the high operational costs and limited production.

Evidence shows that information technology contributes significantly to facilitating business growth (KNBS, 2016). A crucial facilitator for the realization of Kenya's Vision 2030 has also been identified as information technology. Sending emails, placing orders or purchases, conducting banking transactions, and hosting websites are just a few of the tasks that technology may make easier. In line with KNBS (2016), Computers were reported to be used by 92.1% of businesses in Kenya, while 90.2% had internet connections. ICT, manufacturing, finance, and health SMEs sectors were found to be creative, according to research published by KNBS. SMEs

were found to lack creativity in their operations and product promotion, nevertheless. (KNBS, 2016).

SMEs and new technology are important to Kenya's economy; however, they face diverse challenges. Therefore, this investigation aimed to assess the connection between information technology use and SMEs' performance in Nairobi, Kenya.

### **1.1.1 Information Technology**

Karadag and Dumanogl (2009) defined information technology as “the development and management of hardware, software, networking, database, and other technologies”. Bhardwaj et al. (1999) defined information technology as the firm's ability to mobilize and deploy technology-based resources and capabilities within a firm. Wide-ranging study has been done to determine the impact of information technology on a firm's productivity and performance.

According to experts, information technology is the main driver of the expansion of SMEs, which are essential to Kenya's social and economic development. By boosting productivity and lowering production costs, information technology raises an organization's overall profit. (Ruttan, 1997). Compared to large firms, SMEs are more flexible and adapt faster to new ideas; hence, they benefit more from changes in technologies that occur regularly. The nature of SMEs, which include simple organizational structure, lower risk levels and flexibility, place them in a better position for innovation (Harrison & Watson, 1998).

Information technology that is responsive to local economies leads to product and services differentiation, therefore, it's a necessity in supporting and promoting SMEs development. Indigenous information technology that is often associated with low costs and efficiency is crucial for SMEs' growth in developing countries. Therefore, linking SMEs with specialists in technologies should be done in a manner that generates a favorable atmosphere that increases indigenous technologies' capacity. Due to the fact that information technology offers unique products and services that fit the company's budget and market demands, this link is likely to drive the growth of SMEs. Technology curbs major challenges affecting SMEs performance and growth, thus their contribution to sustainable economic development is reduced (Hill, 1987).

The use of technology by SMEs will make it easier for them to complete tasks like sending business emails, hosting their website, taking orders or making purchases, using online and mobile

banking, accepting mobile payments, and avoiding cash payments in favor of electronic financial transfers. KNBS conducted a study on the application of ICT among SMEs in several industries; 87 per cent of SMEs have dedicated mobile phones for their business. About 71 per cent of these SMEs use mobile phones to place their orders and 77 per cent to receive orders. Seventy-three per cent of the SMEs also have an account for mobile money, 25 per cent have a pay bill account, 16 per cent have a till number account and 10 per cent have an account for mobile. Additionally, 73.7% use money mobile payment accounts while 29.2% are using internet banking. In total, 92% of SMEs have computers in their workplaces (KNBS, 2016).

There is increasing attention in SMEs' adoption of emerging technologies in developing countries. Several theories have been established and successfully applied in developed countries; however, despite their success; they haven't been used in developing countries. For example, the theory that technology is necessary for business growth in the industry sector that is privately owned (Manimala et al., 2012).

### **1.1.2 Performance of SMEs**

The degree to which an organization maximizes stakeholder interests and satisfies their own survival needs can be used to gauge its performance (Griffin, 2003). Diverse stakeholders in any firm have different interests, such as maximizing profits and improving staff productivity. Employees' performance is measured by setting measurable objective and key performance indicators. For the business owner, the level of revenue generated by the company is used to gauge performance. Shareholders will use payout per share to gauge performance while clients will evaluate performance based on the pricing and quality of the offered goods and services. Nonprofit organizations use metrics such as membership expansion, donations from donors, the number of clients served, and visitors to the organization to assess their effectiveness.

Richard et al., (2009) cites the three main components that make up a company's performance. Profitability, return on assets (ROA), and return on investment (ROI) are the first metrics used to assess fiscal performance. Then, the shareholder return is calculated by total returns for investments, economic value-added, and finally, the overall performance of the product in the market that is measured by sale volumes and percentage of the market share. Performance of businesses is assessed using a number of techniques. The most well-liked and frequently applied strategy is the balanced scorecard. Each stakeholder's interests are considered when creating a

balanced scorecard. Financial, customer viewpoint, procedures, learning, and growth will all be measured by a balanced scorecard.

Organizational performance would necessitate the assessment of key performance indicators that would successfully help the company determine, assess, and monitor its level of competitiveness in the marketplace. According to Thompson (2007), the achievement of a strategic business objective that leads to an improvement in its market share and competitiveness is often overlooked when only financial measures are used. This therefore results to failure to define what helps a company attain better financial results correctly. However, only the company's market share can be measured quantitatively among these components. On the other hand, all financial performance indicators can be quantified. (Cole, 2005).

### **1.1.3 Small and Medium Enterprise in Kenya**

Different countries usually classify businesses as either SMEs or large enterprises, depending on the number of employees and the level of cash flows. Global agencies including the World Bank, the UN, and the World Trade Organization (WTO) frequently use the phrase "SME" (KNBS, 2016). SMEs can also be referred to as small and medium-sized businesses (SMBs). Different nations classify SMEs according to various criteria. The term "MSME" is used to describe two categories of small and medium-sized businesses in Kenya, each of which has a distinct cap on people and financial flows. Small businesses typically employ 10 to 49 people and generate between Kshs. 500,000 and Kshs. 5,000,000 in annual cash flows. The medium businesses employ between 50 and 99 people. (Micro and small enterprise act no. 55 of 2012).

MSMEs are found in all economic sectors in Kenya and are categorized into four categories: agriculture, trade, manufacturing, and service supply (Micro and small enterprise act no. 55 of 2012). The number of SMEs has expanded since the creation of the Youth Enterprise Development Fund and Women Enterprise Fund. The increase can be linked to the fact that the resources offered at these institutions have increased opportunities for both young people and women. As a result, the youth and women can set up businesses that trade in commodities, services, or agriculture in both rural and urban locations. (Institute of economic affairs).

Statistics reveal that SMEs are categorized globally based on the number of employees; SMEs in Australia are companies with fewer than 200 employees. For Japan and Korea, SMEs are companies with fewer than 300 workers and for Chile SMEs are companies that hire less than ten employees (OECD, 2017b). SMEs are crucial to the worldwide effort to boost productivity, achieve equity, and guarantee non-discrimination in the distribution of gains from globalization and technological innovation. Furthermore, due to their flexibility, SMEs enables countries to quickly adjust to the global transformation of the business environment taking advantage of emerging opportunities and risk mitigations (OECD, 2016a). SMEs also contribute significantly to GDP and job growth in emerging countries.

SMEs contribute to more than one-third of the GDP in emerging and developing nations. SMEs also contribute about 34 to 52 per cent of employment in the formal sector (ILO, 2017). In India, SMEs are referred to as the backbone of the country's GDP growth. This is due to the fact that they are thought to account for 40% of all exports and roughly 45% of manufacturing output. SMEs were expected to contribute 20% of India's GDP by 2010 (Sources: [msme.gov.in](http://msme.gov.in) /KPMG / CRISIL / CII, 2019). In Malaysia, SMEs account for more than 98.5 percent of all business entities and are responsible for 36.6 percent of the nation's GDP (SME Corp., 2019).

Financial institutions' involvement in the industry has risen as a result of SMEs' relevance to the economy and their rapid expansion. This is clear from the vast array of solutions that financial institutions have developed and continue to develop specifically for the SME sector. The financial institution serves as a source of financing for SMEs in the form of operational working capital and raw supplies or long-term loans for machinery, real estate, and buildings.

The government of India saw the necessity to provide open access to finance for the SMEs sector through programs like Mudra Yojna, Startup, PMEGP, CGTMSE, etc. Commercial banks should make money readily available to the sector of SMEs (Sources: [msme.gov.in](http://msme.gov.in) /KPMG / CRISIL / CII, 2019). In Kenya, the commercial bank maintains developing creative solutions for SMEs, both on an individual and partnership basis. The most recent was the introduction of the STAWI SME lending package. In the past, SMEs were excluded from accessing formal credit due to the informal recording system and absence of collateral (CBK, 2019). However, STAWI mobile-based credit scheme aims at improving SMEs' credit accessibility.

## 1.2 Research problem

The performance of information technology is poorly understood, despite the fact that organizations like KNBS, CBK, and KIPPRA have extensively researched small and medium firms in Kenya. The majority of SME enquiry has concentrated on enterprise size, GDP contribution, and funding. Performance and information technology use are positively correlated in SMEs and across all economic sectors, according to research carried out at universities by multiple academics throughout the world.

Chesire and Nassiuma (2018) carried out extensive research about; “Influence of Information and Communication Technology (ICT) Adoption on Small and Medium Enterprise Performance in The Entertainment Sector in Nakuru Town, Kenya.” Pegged on institutional theory, technological, organizational, and environmental theory, and the diffusion of innovation theory. Their study's conclusion is that ICT adoption affects business performance ( $\beta = .333$ ,  $p = .001$ ). Government, ICT vendors, and suppliers should investigate the demands of the market for SMEs, according to their study's recommendation, and businesspeople should be trained. The best policies should be developed for the industry, and academics can use these discoveries to further explore other economic areas. In contrast to my study, which examines all SME sectors, their analysis concentrates on just one of them.

According to Jabbouri et al. (2005) on “Impact of Information Technology Infrastructure on Innovation Performance: An Empirical Study on private Universities in Iraq”, The performance of innovation and IT infrastructure were positively correlated in a statistically meaningful manner. Based on these findings, they suggested additional study into the use of information technology as a tactical instrument for boosting innovation's effectiveness. Farhanghi et al (2013) shown that both descriptive and causal research approaches can be used to show causal relationship link between IT, organizational foundation, and company performance. IT has both direct and unintended effects on a firm's performance. The results showed a relationship between organizational foundation and achievement of Iranian firms.

Nearly all of the problems that Kenya's SMEs face can be resolved with technology, hence studies relating information technology use and small business profitability are necessary in Nairobi County, Kenya. Therefore, this study investigated the registered Micro, small and medium-sized enterprise engaged in trade, manufacturing and service in Kenya, Nairobi County.

### **1.3 Research Objectives**

Finding out how information technology affects the performance of SMEs in Nairobi, Kenya, was the study's main objective.

- a. To ascertain the extent of SMEs' use of information technology in Nairobi, Kenya.
- b. To ascertain how the performance of SMEs in Nairobi, Kenya is impacted by information technology.

### **1.4 Justification of the study**

One of the critical pillars of Kenya's Vision 2030 is the economy. The SMEs sub-sector is comprised of the several sectors that make up the economic pillar. Obtaining a yearly economic growth rate of 10% that is sustainable is the fundamental goal of the economic pillar. Kenya's SMEs sub-sector is rapidly expanding and plays a significant role in the country's economic growth through GDP contribution, job creation, and innovation. One of the crucial areas that must be improved for them to perform better is the use of information technology. In order to determine whether information technology has a good impact on SMEs' performance, a study on performance and information technology use by SMEs in Nairobi County would be helpful.

All SMEs across the country can readily implement the study's conclusions. Nairobi is the country's main city and is more appropriate for the study given the abundance of SMEs there. As per the 2009 census, Nairobi has the most people per square mile of 3,138,369 people and a density of 4,514.96. The County is also reading in the resource recruitment with a workforce of 3,109,861. Nairobi had 2,624,500 people employed in the informal sector (KNBS, 2009). Also, as per KNBS statistics' on MSMEs Nairobi has the highest employment rate of 27.8% (KNBS, 2016).

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

In-depth treatment of the theoretical and empirical studies that formed the basis of the research is provided in this chapter. Theoretical foundations for this research are listed below. They describe the need for the investigation and create a key relevant construct.

#### 2.2 Resource-Based Theory

According to Prahalad and Hamel (1990), the resource-based theory states that a different approach to running activities in unique, firm-specific core competencies is crucial to gaining a competitive advantage over other organizations. This theory emphasizes firms' available resources as a means of rearranging activities in a way that enables a firm to outperform its competitors. To gain a competitive advantage the organization's resources must be scarce, valuable, not easily imitated or substituted (Barney, 1991).

Creating a long-term advantage over competitors is one of the main outputs of strategic management and marketing (Fahy and Smithee, 1999). This is due to the fact that there would be no competitive edge if all businesses in a given sector had comparable resources and capabilities, they could not provide a range of value (Peteraf, 2009). The notion emphasizes that businesses should develop and implement various action plans in order to win over their rivals and, ultimately, to generate the maximum returns in their particular industry of operation (Bensako, 2010). When businesses apply resource-based theory to their strategy, it enables them to establish the relationship between their resource, competition, profitability from investments done, rate of return from technology innovation and how imperfect information can create a difference in competing firms resulting in competitive advantage (Grant, 2001).

#### 2.3 Diffusion of Innovations Theory

The diffusion hypothesis describes how new technology is disseminated among pertinent beneficiaries in a social system. Everett Rogers contends on the theory that diffusion can be described as the procedure by which a new technology/innovation reaches the relevant participants (Everett, 2003). In their study, Green et al assert that, in any social system, one does not have to wait for the innovation to reach the poorest. They can accelerate it through intensive, and appropriate communication channels for outreach (Green et al.,1991). Innovation is a perceived



new idea, practice, or object by an adoption unit or interested party (Rogers, 2003). A new idea needs to be adopted broadly in order to succeed. A new idea needs to be adopted broadly in order to succeed.

The four fundamental components of innovation diffusion are; Innovation which is a completely original idea or a reworking of an existing concept, thing, or field. It is the emergence of a brand-new phenomenon that was never before. Then there is the means by which innovation in a social context will be rely on. Any innovation must have a strong public appeal for any social system for it to be broadly accepted. The mass media and opinion leaders are the two most potent avenues for the effective acceptance of innovations. Information is quickly shared through the mass media's wide audience, but opinion leaders must see the innovation with the proper perspective. The social structure, like a church, an institution, or a collection of individuals, is what creates society. It then takes time for innovation to become well-known and pervasive.

The adoption of new technology is influenced by five factors: compatibility, complexity, triability, observability, and relative advantage. Adopters are also impacted by these elements. There are five categories of adopters in any social system: pacesetters (innovators), initial/early adopters, prime/early majority, delayed/late majority, and laggards/dawdlers (Rogers, 2003). Figure 1 is a graphical representation of innovation adoption cycle. Diffusion of innovation theory is usually recommended for peer-to-peer or a network of change agents. Message content is tailored and implementation support is provided for individual's ready for a change (Dearing,2009).

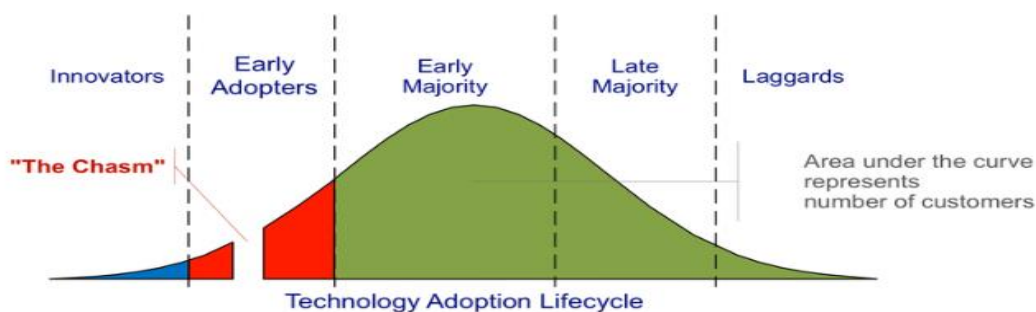


Figure 1: innovation adoption lifecycle

## **2.4 Disruptive Technology Theory.**

Christensen (1997) is credited with coining the term "disruptive technology" as one that displaces an existing know-how thus changing the whole industry or produces a new product that completely transforms the industry. Christensen (1997) divides technology into two groups; Sustaining and Disruptive technologies. Sustaining innovation is improved modification of previous technology. In contrast, a disruptive technology requires adjustments, have to be tested over a certain period and needs marketing to attract new customers. According to Christensen, when established businesses help create an environment where disruption is possible, disruption occurs. The company neglects the demands of the smaller customers in favor of enhancing its products to satisfy its biggest clients. By so doing, they present a chance for new businesses to establish themselves and acquire a market that they can expand on (Christensen, 1997).

Disruptive technology has the advantage of producing superior goods at a cheaper price. Technologies that are disruptive include;

M-Pesa technology, which is a disruption to traditional brick and mortar banking, enables users to open mobile accounts and conduct safe, swift cashless transactions. M-Pesa has developed to provide a variety of cashless solutions, such as; M-Shwari, which enables customers to save money while still obtaining credit, Lipa na M-Pesa, which eliminates the need for actual cash for customer and allows customer to business or business-to-business cashless payments. Finally, financial institutions have been allowed to link with the M-Pesa platform, enabling customer to be able to send money from their bank to mobile accounts or vice versa. M-Pesa, in contrast to banks, has made it possible for lots of individuals to hold mobile accounts and have easy access to loans.

Social networking, an online platform used for communication with loved ones, friends, and for business purposes (Investopedia, 2019) is another form of disruptive technology. Facebook, Twitter, WhatsApp, and Instagram are the common social media platforms in Kenya. Social networking is quickly replacing media and billboard advertisements as a crucial base for marketers looking to connect with customers. The real-time nature and broad audience aim of social networking advertisements makes them special. Nearly every business today has a social media presence where they publish real-time updates on any new products released to the market and events they are promoting. This is because using social networks to connect with both existing and potential clients has become commonplace. Some businesses use social media for customer

service, allowing clients to contact them through their social media profiles and receive assistance. Corporates now have a dedicated social media department. Social media is utilized to advertise the company and uphold customer loyalty (Investopedia, 2019)

Due to the ability to make calls from anywhere, cell phones and smartphones have impacted the Telkom sector. With the advent of smartphones, which allowed individuals to buy, bank, and make payments via their phones, cell phones underwent even more disruption. This new function increases user convenience while lowering operational costs and handling risk associated with cash.

The postal system, greeting cards, and letter-writing were all affected by email. A message sent electronically from one computer or smartphone user to one or more recipients through a network is known as an email.

## **2.5 Information Technology used by SMEs**

Cost and market share are the performance metrics this study is evaluating. That is how, using information technology can result in lower operational expenses, more profitability, and better productivity. A rise in market share will also follow. Here are several technical elements that SMEs can employ to enhance their performance.

SMEs can improve their performance by determining ways in which they receive or make payments. Acceptance of mobile payment, digital money transfer and use of Mobile and internet banking while making payment results in low cost hence improvement in SMEs performance. Payments refer to the methods by which SMEs will be compensated for the goods and services they provide or pay for those they obtain from other sources. Payment will also include sending staff salary and compensation. The two most popular payment kinds are provisioning and exchange. Exchange is the use of money, including coins and banknotes, whereas provisioning is the movement of money from one account to another through a third party.

Provisioning is the most appropriate kind of payment in the modern world because it is electronic and facilitates a smooth payment process. SMEs can employ a variety of electronic payment methods for both account payables and receivables, including; Mobile payments, online bank transfers, cards with magnetic stripes, EFT, RTGS, and credit, prepaid, smart, and contactless payments are all examples of these. Utilizing electronic payment methods has several benefits over

using cash, including lower risk of theft while handling currency and less time spent processing cash (such as sorting and counting it). Electronic payments save money because there is less paperwork and postage to buy. Due to the advantage, more consumers are choosing electronic payment methods over cash payments. CBK statistics show that automatic and mobile payments are being used more and more frequently. According to a study on federal reserve payments (2004), the use of electronic payments increased as cheque payments decreased from 2000 to 2003. A survey of bank executives conducted by Thornton's (2005) revealed that 65% of community banks and 94% of large banks provide 24/7 online bill paying.

The use of social media to promote the brand and market their product is an information technology application that can significantly affect SMEs performance. Striking a balance between cost and profitability during marketing an SME's brand is crucial for enterprise development (Olenski, 2015). The main objective for a new brand is maximizing stakeholder's returns by innovating effective strategies that are cost-efficient (Olenski, 2015). It would be reasonable to use a cost-effective marketing approach given the nature of SMEs' businesses. According to Olenski (2015), Blogging, which is a successful approach to drive visitors to a website, is an example of a low-cost marketing strategy that SMEs may employ to promote their brand. SMEs can increase traffic to their websites by posting frequent, high-quality blogs that are pertinent to their industry. This is explained by search engines' preference for constantly updated websites with excellent and pertinent information. Both of these qualities are present in a blog that is often updated.

Further, advertising a brand through online companies is very cost-effective. Social media platforms like Facebook, Instagram, and Twitter, which have massive audiences and real-time data, can be useful for marketing. Utilizing online businesses to promote a brand encourages devoted clients to post favorable reviews, enhancing reputation and increasing brand awareness. Videos are a fantastic method to visually captivate your audience and raise product awareness. The videos may be produced internally or externally. Mailing lists for clients who are really interested in your goods can be an excellent tool for brand promotion. Customers will be updated about new items and offers via the mailing list. A mail list might include both email and social media groups where updates are frequently sent because of the necessity of social media.

## 2.6 Empirical Studies

This study sought to understand how SMEs' productivity and operating expenses were impacted by the deployment of information technology. Due to advancement in technology, businesses are now more able to match customer expectations and improve on how services are offered and the organizational design. Crichton & Edgar (1995), discovered that cutting-edge IT enables businesses to handle industry difficulties and acquire an advantage over rivals. According to Ragowsky et al., (1996), enhancing a company's edge over competitors to boost performance can be achieved through investing in IT. Khosla (2013) asserts that SMEs have failed to get access to both local and foreign niches. They have only been able to compete in niche areas, and new businesses frequently present stiff competition. SMEs now have a chance to compete globally thanks to the advancement of information and communication technology (ICT) technologies (Wanjau et al., 2012; Manuere et al., 2012). Large enterprises have valued the adoption of ICT over a long period compared to SMEs (Nyakuma et al., 2016). There is a low intake of ICT among SMEs; little progress from fax or landlines have been witnessed among SME's (Khosla, 2013; Cant et al., 2015).

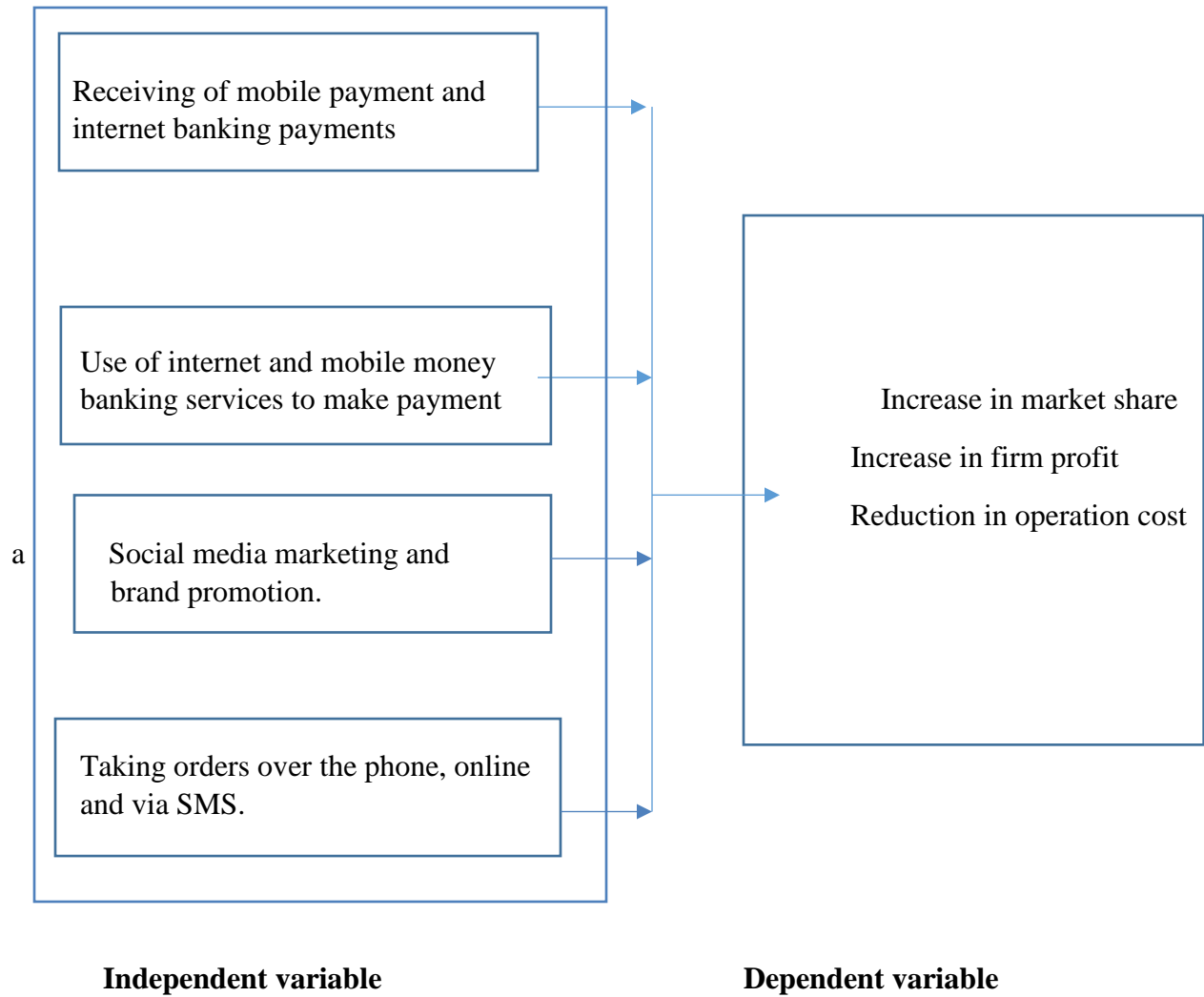
Ashrafi et al., (2008) assert that the significance of ICT adoption by SMEs have been recognized by governments all over the world thus resulting in the creation of distinctive groups to research on different features of ICT adoption. Consequently, many organizations all over the world from different sectors are adopting ICT not just for bringing down total costs and increasing efficiency but also improving services rendered to customers (Appiah et al., 2015). As stated by Mokaya (2012), Information is a fundamental prerequisite in SMEs' business establishment, expansion, and survival. (Wambaria et al., 2016); ICT has the potential to close information gaps for SMEs (Mokaya, 2012; Makau and Wawire, 2013; Wambaria et al., 2016). Information Technology increases business productivity, reduces expenses, and boosts both domestic and international market share (Mokaya, 2012; Wambaria et al., 2016); resulting to job creation, the production of revenue, and heightened level of competition nationally (UNDP, 2007; Mokaya & Njuguna, 2010; Mokaya, 2012; Wambaria et al., 2016; Wachira, 2014). Ashrafi et al(2008) follow-up study showed that adoption of ICT resulted in cost reductions for 80% of SMEs, income growth for 53% of them, and improved customer knowledge for 57% of them.

IT capacity leads to direct contributions to better organization's structure in transaction-specific processes, investments, absorption capacity and monitoring that results from the improved performance of its strategies and operations (Jean et al., 2008). Additionally, research already conducted demonstrates that technology significantly affects both organizational design and business performance.

Performance can be assessed in a number of ways, but in this study, growth, market share, and public relations are being measured along with financial performance factors like profit and return on investment. Information technology is the cornerstone of a company offering trustworthy services in a coordinated and well-organized manner CIS (Mitchell et al., 2012).

Data from Statista's website demonstrates a rise in technical expenditures on an annual basis, with global expenditure totaling \$ 1,517B. The expense is broken down into 542 billion for Telkom services, 223 billion for software, 272 billion for hardware, and 480 billion for IT services (Statista 2019). Therefore, this demonstrates how businesses are realizing the benefits of technology. Both efficacy and efficiency are aided by technology. Investing in IT apparatuses like the MIS, Internet and office computerization may lead to an organization increase in efficiency and also effectiveness (Allameh et al., 2011).

## 2.7 Conceptual Framework



**Figure 2:** conceptual framework for performance-influencing factors

## **CHAPTER THREE: METHODOLOGY**

### **3.1 Introduction**

In order to accomplish the study's goal by drawing accurate conclusions and clearly presenting the analytical framework, the chapter includes a research design, procedures for data collecting, and analytical methodologies.

### **3.2 Research Design**

A descriptive statistical approach was used in this investigation. In line with Krathwohl (1993), detailed data exploration, result organization, result fitting, and validation are all components of descriptive statistics. Descriptive statistics is employed in situations when there are one or more variables. Contrary to other types of research, descriptive research just requires one variable even if it can evaluate several variables (Borg & Gall, 1989). According to Borg and Gall (1989), Surveys and observations are made in order to collect descriptive information and evaluate "what is." Data that provides a thorough account of the occurrences is collected as part of a descriptive data collection. Additionally, it comprises tabulating, organizing, and describing the information gathered. (Glass and Hopkins, 1984).

Using both quantitative and qualitative methodologies, the study adopted a mixed-methods approach during data collection and analysis. According to Bazely (2000), using of both numerical and text data through statistical and analytical tools while adhering to the same approach is known as a mixed-method. The two methodologies function best together, and using both qualitative and quantitative procedures assures a full examination of the data.

### **3.3 Population of the Study**

All enumerated SMEs within Nairobi County engaged in commerce, service, and manufacturing activities made up the study's population. There are 268,100 registered SME business in both commerce, service and the manufacturing industry as recorded in KNBS (2016) statics.

### **3.4 Sample Design**

It was not feasible to study all SMEs due to financial, human resource, and time constraints. Out of the 268,100 registered SMEs within Nairobi County, 100 respondents were interviewed.



The study employed a probability proportionate to get the sample size for the interview informants. Yamane (1967), stated the probability proportionate formula as below;

$$n = \frac{N}{1 + N e^2} \dots\dots\dots(1)$$

$$n = \frac{268,100}{1 + 268,100(0.1)^2} = 100$$

Where N is the entire population, n is the sample size, and e is the

precision error, with a degree of confidence of 90%.

Respondents from each sector were chosen using a deliberate or judgmental sampling method. This non-probabilistic sampling technique makes deliberate efforts to draw representative samples from the entire population (Explorable.com, 2009). Based on their expertise and sound judgment, the researcher chose the respondent.

**3.5 Data Collection Methods**

The survey questionnaire, which was created with structured questions to capture the demographics of the respondents, the amount of technology used by SMEs, and the significance of information technology used by SMEs on performance, was used to collect quantitative data. Key informant interviewing techniques were utilized to get qualitative information from subject matter experts and other knowledgeable individuals.

**3.6 Data Analysis**

A thorough data cleaning to eliminate inconsistencies was conducted to ensure accurate, consistent and complete data is used. To ensure the statics analyzes and display in tables and charts were easier to understand, the final data will be classified and tabulated based on similarity. The gathered data was totaled in a table and summarized using the mean, mode, median, variance, and standard deviation to determine how much information technology is used by SMEs.

Calculations of the effect of information technology on SMEs' performance were based on market share and profit as a result of decreased operating expenses and increased market share. To assess the performance of SMEs, multiple regression models for cross-section data (during a single

period) were applied. Market share and profit are dependent variables that are accounted for by numerous explanatory factors. The model depicted in equation II below specifies this.

$$y_i = \alpha + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k + u_i \quad \dots \dots \dots \text{II}$$

Where:

$u_i$  – is the random error term which is assumed to be normally distributed;  $y_i$  – is a dependent variable that takes different values in ratios;  $\beta_1 \dots \beta_k$  – are the estimate parameters to be estimated;  $x_1 \dots x_k$  – is a set of explanatory variables that influence the level of SME performance.

Correlation analysis was used to evaluate the strength of the association between information technology adoption and SME performance.

The outcomes were displayed in tables. The analysis's goal was to determine whether or not the use of mobile money payments, acknowledgment of payments made by internet banking funds transfer, use of internet and mobile money banking services to make payment, social media marketing and brand promotion and taking orders over the phone, online and via SMS significantly affect SME performance.

The study also combined all the explanatory factors including use of mobile money payments, acknowledgment of payments made by internet banking funds transfer, use of internet and mobile money banking services to make payment, social media marketing and brand promotion and taking orders over the phone, online and via SMS indicators into one regression model to examine their effects on performance as indicated by the regression model equation. (III).

$$SME\_PF = \beta_0 + \beta_1(LNM)_i + \beta_2(EFT)_i + \beta_3(OB)_i + \beta_4(PB)_i + \varepsilon$$

$$SMEPF = \dots \dots \dots \text{(III)}$$

Where:

SME\_PF is Market share and operating costs used to gauge the performance of SMEs.

$\beta_1, \beta_2, \beta_3$  and  $\beta_4$  are independent variable coefficients

$\beta_0$  is the constant

LNM is Lipa na M-Pesa (mobile payments)

EFT is an electronic funds transfer (internet banking payments)

OB is online banking

PB is the social media marketing and promotion of the brand

$\varepsilon$  is the error term

Further, qualitative data generated from the key informant interviews were analyzed qualitatively. The notes were transcribed and the transcripts analyzed thematically were the key study objectives that guided the analysis as key themes.

### **3.7 Pre-testing of Study Tools**

The questionnaires were pre-tested before field data collection with SMEs in the neighboring Kiambu County. The sample for the pre-test was not in any way part of the group that was sampled for the actual data collection. After briefly analyzing the data gathered from the pilot study, the researcher assessed the tools. Any emerging issues from the tool in terms of the questions and flow were addressed and the tools were reviewed and final versions developed for the main data collection.

### **3.8 Reliability and Validity**

To establish the content validity of a measuring tool, the researcher determined the total content to be represented. The information was then appropriately represented in all places by using items that were selected at random from the content. By employing this technique, the researcher was able to collect a set of items that accurately reflected the content of the trait or feature being measured. In order to define a topic area and provide guidance when necessary, experts in the field of study were also used. This made it easier to revise and modify the research instrument as needed. In order for the researcher to get familiar with the research's location, administration process, and content in order to find things that needed adjustment, a pilot study on a small number of SMEs was undertaken. A research tool's consistency level was considered when determining its reliability. Even if unreliability was always present to some extent, the findings of a quality instrument collected at different times frequently showed a good level of consistency.

### **3.9 Ethical Considerations**

The researcher adhered to key research ethical requirements while in the field of data collection and throughout data processing, analysis and reporting. Only those who provided consent were chosen to take part in the research, and the scholar made sure that all respondents and informants who took part in it were informed of its aim. All the data gathered was treated with the utmost confidentiality and not shared with anyone who was not part of the research team. Further, the information provided by the study respondents was only used for academic purposes as had been promised at the time of consenting.

## CHAPTER FOUR: RESULTS AND DISCUSSION OF FINDINGS

### 4.1 Introduction

This chapter presents the findings and analysis of the study on information technology and the performance of SMEs in Nairobi County. This chapter is broken into three pieces, the first of which gives the research respondents' response rate. The demographic profiles and traits of the research respondents are tabulated in the second section, and research conclusions are based on the study's two main goals in the third section. For ease of understanding, the research results are examined and presented utilizing tables, figures, and pictures. An account of the researchers' discussion and interpretation of the findings comes after the results presentation. Along with the quantitative data, findings from the key informant interviews are also shown, and direct quotes from the informants are used to portray the voices of the participants.

### 4.2 Response rate

The percentage of participants who took part in the research out of the entire samples taken is known as the response rate. In this study, the researcher gave respondents 100 questionnaires, 96 of which were completed, yielding a return rate of 96 percent, while 4 of them were incomplete (4 percent), as shown in Table 2. The response rate was deemed sufficient and representative for addressing the study's questions. Creswell (2014) states that for reporting and analysis, any quantitative study with rate of reaction of at least 70% is considered good, while those with at least 80% are exceptional. A high response was attained through a visit to premises, sitting with the business owners to appreciate their business model and by promoting the business through purchase and referrals.

**Table 1: Reaction rate**

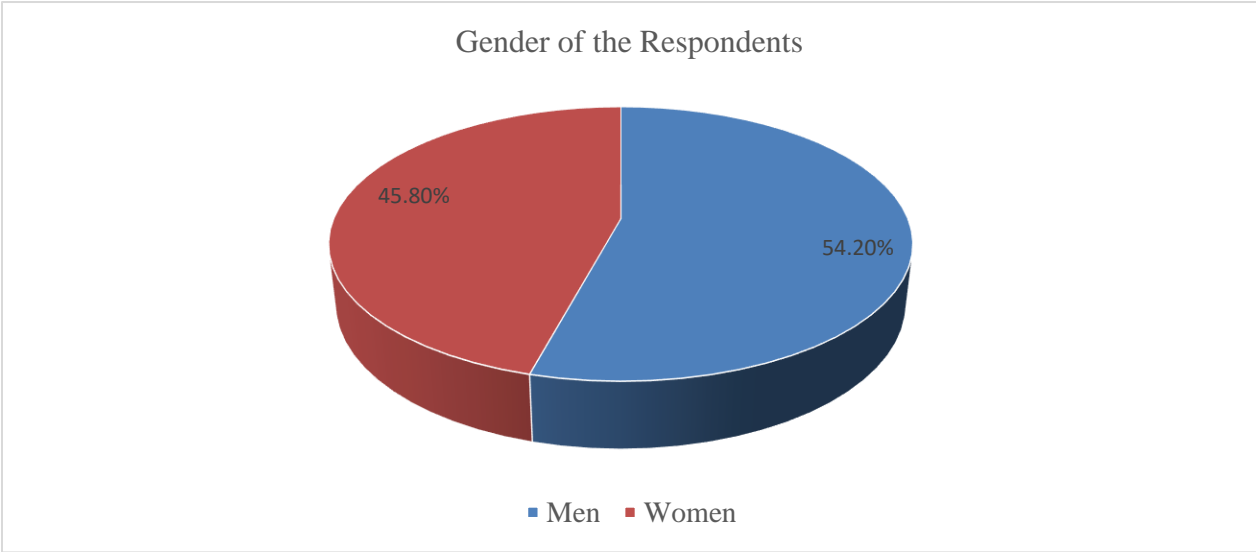
<b>rate of reaction</b>	<b>Number of respondents (n)</b>	<b>Reaction percentage (%)</b>
Complete Questionnaires	96	96%
Incomplete Questionnaires	4	4%
<b>Total</b>	<b>100</b>	<b>100%</b>

**4.3 Demographic characteristics of the Respondents**

To comprehend the study participants in this investigation, it was crucial to know their backgrounds. These traits included gender, age, educational attainment, business type, number of years in operation, and ethnicity.

**4.3.1 The respondents' gender**

To better understand the differences in dynamics between SMEs owned and operated by women and men, this study looked into the Participants' gender. From the findings, men made up the majority of survey respondents (54.2%), while women made up 45.8% of the study respondents. This is illustrated in Figure 3. Though the study infers that SMEs are male-dominated, the difference is negligible. There has been a rise in women-owned SMEs. This rise has been necessitated through government support via the introduction of affirmative actions and programs such as the Uwezo Fund to enhance participation of men and women especially the youth.



**Figure 3: The respondents' gender**

**4.3.2 Distribution of Respondents by Age**

The information on respondents' ages show that the majority of respondents, 54.2%, were aged between 36 and 45, while 19.8 percent among the participants were between 26 and 35 years of age. Additionally, participants who were between 46 and 55 years old accounted for 13.5%. The age bracket of 18 to 25 and over 55 years age accounted for 6.3% of the total number of respondents as shown in Table 2.

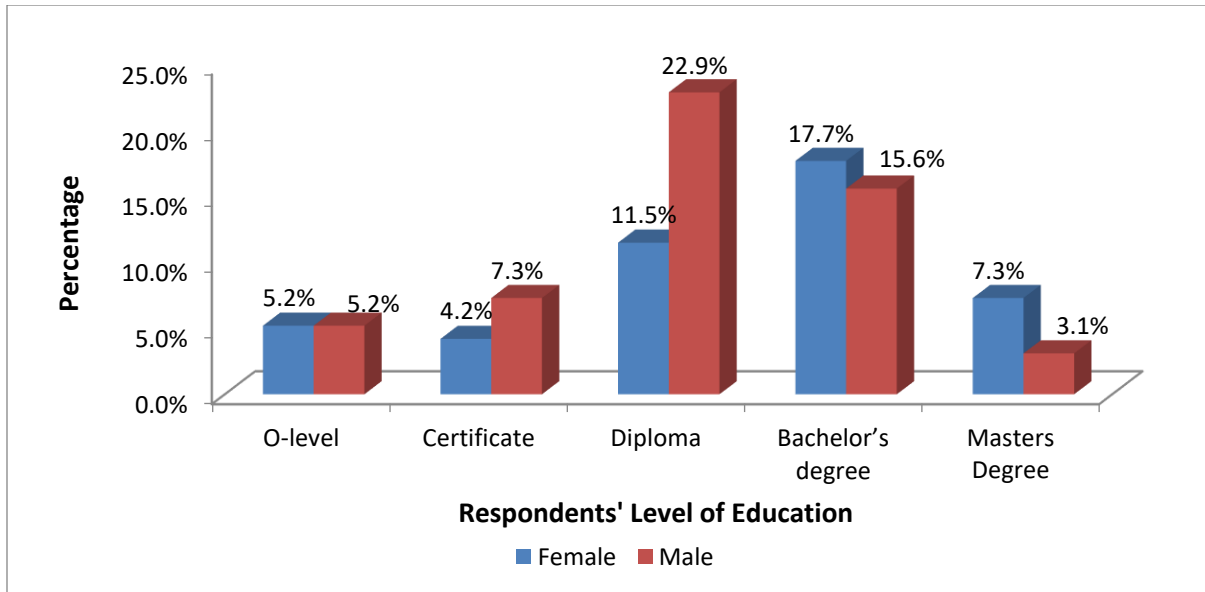
The age of the respondents was a significant variable in this study since it first reveals which age groups (youth, middle age, and elderly) are responsible for managing the SMEs. Secondly, the data on age could indicate the level of experience of the respondents with IT adoption in SMEs. From the study, bulk of responders (54.2%) were in the 36–45 age range. The high response rate for this age group is because this is usually a prime age characterized by adequate knowledge and managerial skills. Also, this age group has a high credit score hence easy access to credit facilities for business establishment. Though the government and private sector have initiatives such as the Youth Enterprise Development Fund and incubation centers, more need to be done to mobilize entrepreneur skills among the youth. As per Kenya association of manufactures’ (KAM) simplification of business startup operations, fostering SME innovation and patenting could boost business startup among the youth.

**Table 2: Distribution of Respondents by Age**

<b>Age Bracket (Years)</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
18-25	6	6.3
26-35	19	19.8
36-45	52	54.2
46-55	13	13.5
Over 55 years	6	6.3
<b>Total</b>	<b>96</b>	<b>100.0</b>

#### **4.3.3 Respondents Distribution by Level of Education and Gender**

It was requested of the study participants to state their degree of schooling. From the findings shown in Figure 4, 5.2% both male and female participants claimed that the O-level was their greatest level of schooling. Also, 11.5% of participants had earned a diploma from college, with 7.3 percent of men and 4.2 percent of women responding overall. According to the statistics, 22.9 percent of the male respondents had completed a diploma program, compared to 11.5 percent of the female respondents who had completed the same program. This category of respondents accounted for 34.4% of sample size. Conversely, 15.6% of male respondents and 17.7% of female respondents both reported having completed a degree-level of schooling. This category of respondents accounted for 33.3% of the sample size. Finally, out the 10.4% participants who had attained Master’s education level , 7.3% were Female and 3.1% were men.



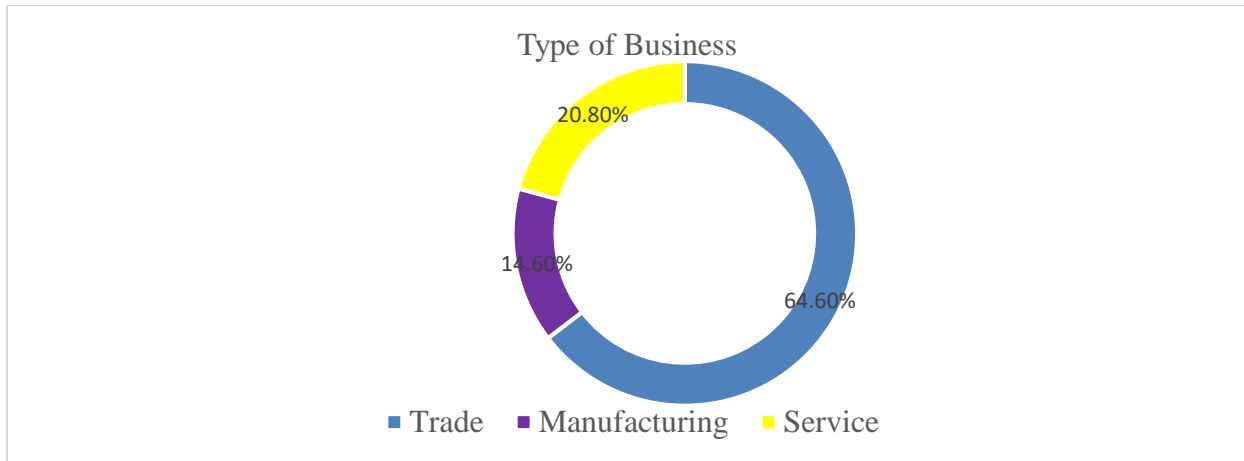
**Figure 4: Respondents Distribution by Level of Education and Gender**

Level of education was considered significant in this study since it was discovered to have a direct impact on the utilization of information technology and the effectiveness of SMEs in the research field. Essentially, education and school mean increasing one's knowledge and a means of moving to the position of more power over the use of resources including technology.

#### **4.3.4 Type of Business the Respondents Operated**

This study investigated the types of enterprises that SMEs were running. Participants were asked to indicate the type of business they operate based on the three categories; manufacturing, trade, and service. Based on the study, majority of respondents (64.6 percent) said their SMEs were involved in trade operations. The remaining 14.6 percent of respondents said they ran manufacturing enterprises, while the remaining 20.8 percent of respondents said their SMEs provided services. Figure 5 displays these findings.





**Figure 4: Type of Business the Respondents Operated**

#### 4.3.5 The type of ownership

Study participants were asked to specify how their company/SMEs were owned. As shown in table 3, majority of respondents (66.7%) disclosed that their businesses were sole proprietorships. The results further show that 22.9% of the respondents reported that their businesses were in form of limited liability companies while 10.4% indicated that their businesses were in form of partnerships. The bulk of the businesses/SMEs included in this study were sole proprietorships, according to the data.

**Table 3: The type of Ownership**

Type of Ownership	Frequency (n)	Percentage (%)
Sole proprietorship	64	66.7
Partnership	10	10.4
Limited liability company	22	22.9
<b>Total</b>	<b>96</b>	<b>100.0</b>

#### 4.3.6 The length Business has been in Operation (years)

The length of time in years that the study participants' enterprises had been operating was requested of them. Three categories were used to categorize the length of time, including those who have been in business for less than five years, those who have been in business for five to ten years, and those who have been in business for more than ten years. The findings show that 37.5 percent of respondents said their companies had been operating for five years or more but less than ten, while

33.3 percent said their companies had been operating for less than five years. According to Table 4 below, the other respondents who said their companies had been in operation for more than 10 years made up 29.2 percent of the total respondents.

**Table 4: The length the business has been in Operation (years)**

<b>Number of years (range)</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
Below 5 years	32	33.3
5 to 10 years	36	37.5
Above 10 years	28	29.2
<b>Total</b>	<b>96</b>	<b>100.0</b>

In this study, the duration of time of business for respondents was a vital variable for this study as it demonstrates their entrepreneurial experience within SME management and hence the degree of computer technology experience.

#### **4.3.7 Position held in Business**

Participants in the survey were asked to state the role they hold in the business. From the findings, 38.5 percent of respondents identified as business owners, compared to 46.9 percent of respondents who said they were employees. While, for 14.9% of the study participants confirmed that they were family members as shown in Table 5 below.

**Table 5: Position held in the Business**

<b>Position</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
Owner	37	38.5
Employee	45	46.9
Family	14	14.6
<b>Total</b>	<b>96</b>	<b>100.0</b>

#### 4.3.8 Estimated Cash flow in Year

The researcher requested that the study participant to provide an estimate of their enterprises' annual cash flow. Under 0.5 million (Kes), 0.5 million to 5 million (Kes), and over 5 million (Kes) were used to categorize this (Kes). According to Table 6's data, the majority of respondents (64.6 percent) stated that their businesses' expected annual cash flow ranged from 0.5 to 5 million (Kes). 16.7% of respondents said that their firms had an estimated annual cash flow of less than 0.5 million (Kes), while 18.8% reported that their businesses had an estimated annual cash flow of above 5 million (Kes).

**Table 6: Estimated Cash Flow**

<b>Cash flow (in Kshs)</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
<0.5M	16	16.7
0.5M-5M	62	64.6
>5M	18	18.8
<b>Total</b>	<b>96</b>	<b>100.0</b>

#### 4.4 Descriptive Analysis

The section discusses the study's two main goals, which were to gauge exactly how much SMEs in Nairobi, Kenya, used information technology and to assess how that technology affected their productivity.

##### 4.4.1 Level of Use of Information Technology Tools

One of the study main objective was to ascertain the extent to which SMEs in Nairobi County employ various information technology tools. In order to improve performance, respondents were asked to describe how much they used the various information technology tools and services that they had incorporated into their businesses. The replies were given on a Likert scale in a range of 1 to 5, with 1 denoting a very low degree of extent, 2 a low degree, 3 a moderate degree, 4 a high degree, and 5 a very high degree. The findings of the study were displayed in Table 7 below.

From the study findings, participants strongly agreed that they utilized their mobile phones for business purposes, as evidenced by the mean likert scale score of 5. The participants further indicated that they used to a high extent other various forms of computer technology tools such as internet (mean score = 4.68); computers and computer networks (mean score =4.35); and

social media platforms (mean score = 3.95). On the other hand, the majority of respondents used copiers, printers, and scanners to a considerable amount (mean score = 3.18); surveillance gargets (mean score = 3.10); websites (mean score = 3.02); and TVs (mean score = 2.78).

From the findings it can be deduced that majority of SMEs used information technology tools such as the internet, computers and computer networks, and social media platforms to a high extent while IT tools such as copiers, printers & scanners, surveillance gargets, websites and TVs to a moderate extent.

**Table 7: Level of Use of IT Tools**

<b>Level of Use of IT Tools</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Computers and computer networks	96	4.35	0.665
Mobile phones	96	5.00	0.000
Websites	96	3.02	1.256
Internet	96	4.68	0.641
Copiers, printers & scanners	96	3.18	0.665
Surveillance gargets	96	3.10	0.801
Social media platforms	96	3.95	0.887
TVs	96	2.78	0.636
<b>Average</b>	<b>96</b>	<b>3.76</b>	<b>0.694</b>

Key one informant's qualitative results, which stated the following, provided qualitative support for these quantitative findings:

*“Technology now drives everything in the world and businesses environment has adapted so well.... many companies use computers for services provisions, management of goods, mobiles phones, social media platforms, internet and printing and photocopying gadgets are some of the tools of the modern world that you can’t miss in any business.” (KII 4).*

From the study found it was established that the SMEs who participated in the study area adopted various forms of information technology tools and services that support business operations and performance. From the survey, it can be inferred that the firms invested significantly in the usage of social media platforms, internet, and mobile phone services as well as computers and computer networks.

#### 4.4.2 Extent of Use of Information Technology Services by SMEs

The researcher requested the study participants to indicate their level of agreement regarding how SMEs use of information technology tools and services in running their businesses. According to a 5-point Likert scale (1=strongly disagree, 2=disagree, 3=moderately agree, 4=agree, and 5=strongly agree), the questions were assessed. The mean scores and standard deviation, as indicated in table 8 below, were used to interpret the results.

**Table 8: Extent of Use of information technology services by SMEs**

<b>Use of technological Services</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
We use mobile payment services to receive payment.	96	4.56	0.499
We accept payment done via electronic transfer such as RTGS, EFT and Pesalink.	96	4.00	0.883
We use online banking and mobile banking for cash transfer services.	96	4.54	0.614
Our customers can make orders online or via call or message.	96	4.03	0.864
We use social media to market our products.	96	4.10	0.801
The use of Lipa Na M-Pesa increases efficiency.	96	4.64	0.484
Acceptance of payment via electronic transfer such as EFT, RTGS, Pesalink increases efficiency.	96	4.20	0.690
<b>Average</b>	<b>96</b>	<b>4.30</b>	<b>0.691</b>

The majority of study participants, as shown by a mean score of 4.56 in Table 8, agreed that they use mobile payment services to receive payments. Additionally, the respondents concurred that their companies utilized mobile and online banking for cash transfer services (mean score = 4.54 and also used Lipa Na M-Pesa to increase efficiency in their businesses (mean score = 4.64). In addition, the respondents agreed that their firms accepted payment via electronic transfer services such as RTGs, EFT and Pesalink (mean score = 4.00); and also agreed that these modes of transactions/ payments increased efficiency in the business (mean score = 4.20). This is expounded by one of the interviewees indicated that since many of these SMEs are not large entities that transact large amounts of money at a time, many of the firms used Lipa Na Mpesa meets their

customers' needs. Many other respondents also indicated that use of mobile service and electronic money transfer have been of great value to their businesses especially during the COVID-19 pandemic that limited the use of paper money as means of controlling the spread of the disease.

Also, respondents' from the study agreed that their firms used social media to market their products (mean score = 4.10). The respondents from the interview schedule also noted that the platforms provide real-time reach to customers of all ages at any time of day, from anywhere. The price involved in marketing goods and services through social media platforms also was noted to be lower compared to the cost of marketing through print media and television which has improved SMEs sales and growth. Moreover, the respondents agreed that their customers could make orders online or via call or message (mean score = 4.03). The respondents from the interviews explained that by enabling customers to use online platforms, calls or messages to make orders, it allowed their firms to close the sales within a short time thus cutting down on costs from both the customers' end and the business' operations end.

These findings were supported by key informants who said that:

*“Online services for payment for goods and services including mobile money payment has revolutionized the traditional cash payments which improve the efficiency of services delivery seen customers can pay for goods and services anytime and from anywhere...” (KII 2).*

*“Many small and medium enterprises in the county have online and mobile money and banking service.....” (KII 3).*

*“When you look at these small businesses in Nairobi you will see a lot of efficiency in services delivery brought about by the availability of online websites and social media platforms for marketing of good and services.....” (KII 4).*

*“Online payments have improved sales and performance of SMEs greatly because customers make payments remotely and even the goods are delivered to customers at their convenience’ (KII 1).*

#### 4.4.3 Effect of Information Technology on the Performance of SMEs

This section looked at how the usage of information technology affects the performance of SMEs businesses in Nairobi County. The study looked at how the usage of IT affected SMEs' performance in terms of their clientele, market share, operating expenses, and impact on their bottom lines.

The study participants were requested to confirm how using technology to market and promote their products had increased the number of consumers. Table 9 shows the tabulated results

**Table 9: Use of Technology to Promote Brand and Market Products**

<b>Extent</b>	<b>Frequency</b>	<b>Percent</b>
To a Very great extent	37	38.5
To a Great extent	48	50.0
To a Moderate extent	11	11.5
<b>Total</b>	<b>96</b>	<b>100.0</b>

Based on the data in Table 9 above, the majority of research participants (50.0 percent) reported that their companies heavily utilized information technology tools to sell and promote their brands and products. Additionally, 38.5% study respondents reported that of technology enhanced brand promotion and market of products to a very great extent. While 11.5% study participants agreed that they used IT tools to promote their brand and market their products to a moderate extent.

These results were supported by the qualitative results where by the respondents reported that use of IT tools enhanced marketing of their products and increased access to markets which led to growth in sales. One key informant said that:

*“.....the rapid growth of SMEs in the county and particularly in Nairobi County can only be attributed technological growth advancement that is doing well in the country”*  
**(KII 2).**

The extent to which the adoption of technology had increased market share was also inquired of the respondents. Table 10 presents the conclusions.

**Table 10: Use of Technology and Increase in Market Share**

<b>Extent</b>	<b>Frequency</b>	<b>Percent</b>
To a Very great extent	45	46.9
To a Great extent	30	31.3
To a Moderate extent	21	21.9
<b>Total</b>	<b>96</b>	<b>100.0</b>

As shown in Table 10 above, 46.9% of the respondents revealed that use of technology led to a growth in market dominance of their firms to a very great extent, while 31.3% reported that use of technology led to an increase in market dominance of firms to a great extent. A further 21.9% of the respondents were of the opinion that use of technology enhanced the market share of their firms to a moderate extent.

In agreeing with the above results from quantitative findings, one key informant reported that:

*“Information and communication technology play a key role in market access and is the main core of any marketing system....” (KII 3).*

In the next section, the study enquired from respondents on the extent to which use of IT tools had enhanced the quality of goods and services in their firms. The results were tabulated as shown in Table 11.

**Table 11: Use of Technology and Quality of Goods and services**

<b>Extent</b>	<b>Frequency</b>	<b>Percent</b>
To a Very great extent	38	39.6
To a Great extent	39	40.6
To a Moderate extent	16	16.7
To a Small extent	3	3.1
<b>Total</b>	<b>96</b>	<b>100.0</b>

According to Table 11's results, the majority of study informants (40.6 percent) said that their companies' usage of technological tools had improved the quality of their products and services. This is supported by 39.6% of the respondents who revealed that IT tools improved quality of



goods and services to a very great degree. Besides, 16.7% of the study informants noted that IT tools had enhanced the quality of goods and services in their firms to a moderate degree while a few (3.1%) indicated to a small degree. From these results, it can be implied that use of information technology had a great impact on the quality of their products and affected service delivery in SMEs.

The research sought to determine the extent to which SMEs' use of information technology tools, such as those used to sell goods and process payments, had decreased operating costs. Table 12 presents the outcomes.

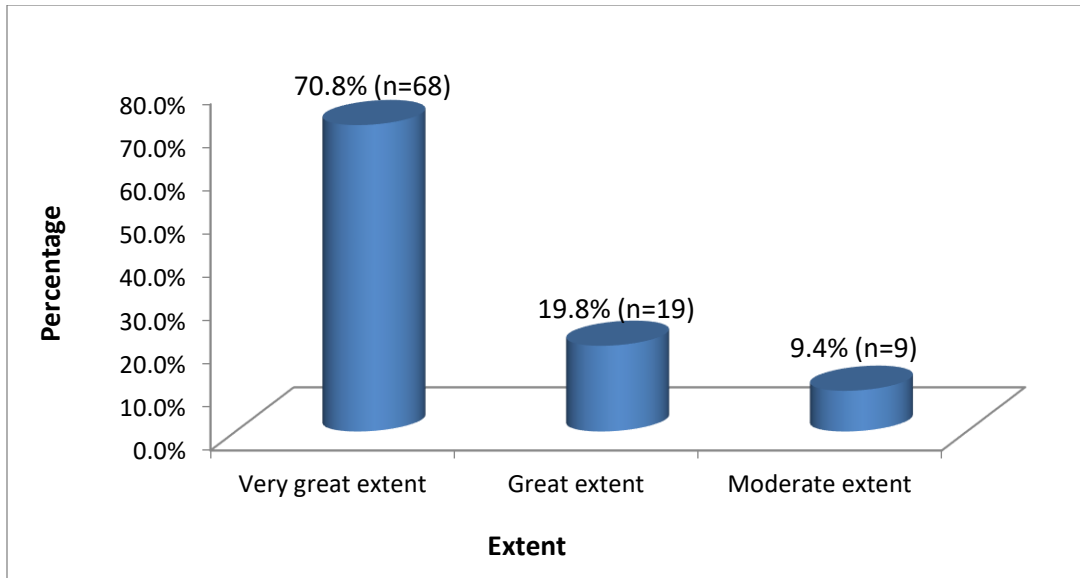
**Table 12: Use of Technology and Reduction of Operation Costs**

<b>Extent</b>	<b>Frequency</b>	<b>Percent</b>
To a Very great extent	50	52.1
To a Great extent	29	30.2
To a Moderate extent	17	17.7
<b>Total</b>	<b>96</b>	<b>100.0</b>

Majority of respondents (52.1 percent), as shown in Table 12, stated that using IT tools to carry out tasks like product marketing and payment processing significantly decreased operating costs in their SMEs. This is supported by 30.2% of respondents who also indicated that use of technology led to a reduction in costs to a great degree. However, 17.7% of the respondents reported that use of technology in their business's operations led to a reduction in costs to a moderate degree.

Further, the study informant stated that use of information technology had reduced the overall costs on transportation, communication, and costs associated with security in the business. This led to business efficiency and improvement of service delivery hence customer satisfaction.

The study further enquired from the respondents on the extent to which reduction in operation costs led to an increase in profits in their firms. The findings are presented in Figure 6.



**Figure 6: Extent Reduction in Operation Costs led to an Increase in Profits**

According to Figure 6's findings, the vast majority of respondents (70.8 percent) stated that using technology to reduce operating expenses had a significant positive impact on their companies' earnings. 19.8 percent of respondents agreed with this statement, stating that lower operating expenses significantly increased profitability. On the other hand, 9.4% of the respondents claimed that decreasing operation costs moderately increased profits at their companies.

As part of research, the participants were asked to describe how their businesses diversified their profits in the following section. Table 13 presents the conclusions.

**Table 13: How Organization Diversified their Profits**

Areas of diversification/ Investment	Frequency	Percent
Opening of new branches	52	54.2
Increase in the number of employees	44	45.8
Additional product/services	72	75.0

The majority of respondents (75 percent), as shown in Table 13, stated that they used their improved income to expand their business's product and service offerings. A further 54.2% indicated that they diversified their profits into opening new branches, while 45.8% invested their increased profits to employ new employees. From the findings it can be deduced that the SMEs

used their increased profits to enhance growth of their businesses by introducing or adding more products and services, opening of new branches and increasing the number of employees.

#### 4.5 Inferential Analysis

The study also did correlation analysis and regression analysis to determine the relationship between the variables and determine the effect of information technology on the performance of SMEs.

##### 4.5.1 Correlation analysis

The correlation technique is used to assess how closely two variables are related. The continuum's two ends, which represent both the ideal negative and the ideal positive link involving any two variables, correspondingly, indicates the degree of association, in a range of -1 to +1. To determine the robustness and focus of relationships between the variables, correlation analysis was performed on each of the research variables. The final presentation of the results is displayed in Table 14 below.

**Table 14: Correlations Results**

		Performance	Mobile payments	Electronic funds transfer	Online banking	Promotion of the brand
Mobile payments	Pearson Correlation	0.460**				
	Sig. (2-tailed)	0.000				
Electronic funds transfer	Pearson Correlation	0.168	-0.019			
	Sig. (2-tailed)	0.102	0.852			
Online banking	Pearson Correlation	0.745**	0.287**	-0.035	1	
	Sig. (2-tailed)	0.000	0.005	0.738		
Promotion of the brand	Pearson Correlation	0.657**	0.185	0.019	0.532**	1
	Sig. (2-tailed)	0.000	0.071	0.851	0.000	
N		96	96	96	96	96

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

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The study's analysis of the data exposed a significant favorable link amongst the performance of SMEs and online banking. This is as indicated by an index of correlation of 0.745. This association is significant as shown by the p-value (0.000) which is less than the alpha value (0.05). A somewhat favorable association between brand promotion and SME performance was also found in the study, as evidenced by a correlation coefficient of 0.657 and a p-value of 0.000, which is smaller than the alpha value (0.05). There was also a moderate a strong connection among mobile payments and performance of SMEs ( $r=0.460$ ,  $p= 0.000 <0.05$ ). On the other hand, the correlation results established that there was a weak, positive and statistically insignificant association amongst electronic funds transfer and the performance of SMEs as shown by  $r=0.102$  and the p-value (0.102) which is greater than the alpha value (0.05).

#### 4.5.2 Regression analysis

To analyze the effect of use of technological tools on the performance of SMEs, multiple linear regression analysis was used. This analysis addressed a number of issues, including how the independent factors interact to affect the dependent variable as a whole, how much each independent variable affects the dependent variable individually, and which features of the model are most crucial. The results are summarized as below.

**Table 15: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.862 <sup>a</sup>	0.744	0.732	0.20619

a. Predictors: (Constant), Promotion of the brand, Electronic funds transfer, Mobile payments, Online banking

When examining the effects of technological use on the performance of SMEs, the  $R = 0.862$  value, which indicates that the variables had a significant degree of association, was added within the prototype, as shown in Table 15 above. A further indication that the predictors in the regression model explain 73.2 percent of variations in the performance of SMEs is the adjusted R square (coefficient of determination), which is  $R^2 = 0.732$ . The remaining 26.2 percent can be accounted for by additional factors not included in the prototype.

**Table 16: ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.225	4	2.806	66.004	0.000 <sup>b</sup>
	Residual	3.869	91	0.043		
<b>Total</b>		<b>15.093</b>	<b>95</b>			

a. Dependent Variable: Performance

b. Predictors: (Constant), Promotion of the brand, Electronic funds transfer, Mobile payments, Online banking

The overall significance of the prototype utilized in the study was examined using the ANOVA test. The ANOVA test yielded a p-value of 0.000. The null hypothesis was rejected and the model was significant since the p-value was smaller than the alpha value (0.05) at the 95 percent level of significance.

**Table 17: Coefficients<sup>a</sup> Results**

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
(Constant)	0.394	0.327		1.207	0.230
Mobile payments	0.145	0.031	0.257	4.643	0.000
Electronic funds transfer	0.125	0.036	0.183	3.450	0.001
Online banking	0.338	0.044	0.495	7.689	0.000
Promotion of the brand	0.416	0.076	0.343	5.457	0.000

a. Dependent Variable: Performance

According to the regression coefficient results, there was a strong and favorable connection between brand promotion and SME performance, as indicated by  $\beta = 0.416$  and a p-value of 0.000, which is smaller than the alpha value (0.05). This suggests that, while maintaining all other factors constant, a change in unit in brand promotion would result in an improvement in SME performance of by 0.416. The findings also demonstrate a strong and favorable correlation between online banking and SME performance ( $r = 0.338$ , p-value = 0.000–0.05). This implies that a unit change in online banking would cause the performance of SMEs to increase by 0.338, holding all other factors constant. The results also show a substantial and favorable link between mobile payments and SMEs' performance ( $r = 0.145$ , p-value = 0.000–0.05; e-funds transfer,  $r = 0.125$ , p-value =

0.0000.05). It was determined that brand marketing was the most significant predictor of performance among all the factors in the regression model.

#### **4.6 Discussion of Findings**

Thus, information technology is altering how SMEs run their enterprises not just in Nairobi and Kenya but in a trend that is seen all across the world. The results demonstrate that IT has increased the following aspects of effectiveness: less delay between ordering and delivery of services; enhanced communication; access to up-to-date data; giving real-time information, hence promoting performance that is completed on schedule; do business analysis, share business related documents or save on the go and effective use of the business process digitally.

Additionally, IT efficiently facilitates reporting incidents that can be monitored and effective customer service rating, cuts down on communication expenses, uses industry-standard communication systems and applications that verify against business criteria to boost data accuracy, enhances the organization's internal information flow, and increases efficiency so that more work can be completed by less resources. Utilizing a website and related website technology has aided in boosting revenue, decreasing instances of fraud, studying the feedback from our customers, and adapting as a result; the ability to operate without the need to print cuts on operation cost; reliable systems for operating. With significant investment in IT, business prototypes can be done to determine the impact of technology on business achievement.

The above findings corroborate those of Olenski (2015) who found that the using social networking to market and promote a brand is a technology application that can significantly affect SMEs performance. Striking a balance between cost and profitability during marketing an SME's brand is crucial for enterprise development. He points out that the primary goal of a new brand is to maximize stakeholder returns by developing innovative, cost-efficient methods. As a result, given the nature of SMEs' businesses, a cost-friendly marketing approach would be acceptable. Similar results were observed by Nyakuma et al., (2016), he noted that blogging, an efficient method of generating visitors to a website, can be used by SMEs as a low-cost marketing technique to promote their business. SMEs can increase traffic to their websites by posting frequent, high-quality blogs that are pertinent to their industry. This can be attributed to the preference for frequently updated websites with high quality and relevant content by search engines. The research outcome is in agreement with that of Khosla (2013) who noted that information and

communication technology causes quick market access, boosts selection power, improves communication, makes it easier to identify markets, enhances marketing, and lowers the cost of commercial transactions.

## **CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Introduction**

An overview of the study results, as informed by the study objectives, is presented in this chapter. Additionally, it offers a conclusion and suggestions in line with the goals of the study. The chapter concludes with ideas for other research topics.

### **5.2 Summary findings**

From the research, a large number of the SMEs used the internet as the IT tool to enhance business performance. The great use of internet by SME can be attributed to; its accessibility, cheaper cost and its portability through mobile WIFI and smartphones. The respondents indicated that many businesses providing goods and services depended highly on mobile phones as an information technology tool that enhances business performance. High mobile use among SME as an IT tool can be attributed to the fact that mobile phones are portable and multi-purpose in that; they are used to make calls, surfing and can as well be used as a storage device. Overtime, the cost of mobile phones has reduced making the same to be easily accessible. Also, the respondents showed that copiers, printers and scanners were key information technology tools that contributed highly to the effective performance of business processes. Security devices and gadgets were indicated too, as some of the important technological tool that enhances the performance of many businesses. Given the nature of SME business and their premise location, security for the goods is a key factor to improve on their performance resulting to the high user of security devices and gadgets. The gadgets are accessible, easy to install and monitoring can be done 24/7 even when one is outside the premises.

Further, it was shown in the results of the study that computers networks were noted by the study respondents as one of the key modern information technology tools that highly support the performance of many SMEs in the study area. Social media platforms such as Facebook, Twitter, Instagram, WhatsApp among others were indicted by the study respondents as being used highly in supporting business sales and performance. Most of the businesses as indicated by the respondents of this study also use computers as core information technology devices to ensure efficiency in the operations of their businesses. Resulting from the study, the respondents noted that websites as forms of information technology have been vital to the performance of their



businesses, another form of information technology tool used in businesses as indicated by the respondents that resulted in positive performance was television.

From the findings, SMEs who participated in the study have adopted various forms of information technology tools and services that support business operations and performance. The forms of IT tools used by SMEs include mobile phones, computers, websites, the internet, online social media, copiers, scanners and printers as well as surveillance gadgets. Mobile phone services are among the IT tools that corporations have made significant investments in. These results demonstrate that the majority of businesses believe that mobile phones have a substantial impact on market expansion. SMEs may boost their efficiency and access information and markets thanks to IT, but it is still out of reach for most of them.

The majority of research participants indicated that the use of mobile and online banking for cash transfers services harbored a variety of advantages to their businesses. The respondents noted that these means of payments provided great security and means of verification in cases where are challenges with services offered or goods sold concerning the price which has greatly improved the performance and operations of many SMEs in the county of Nairobi. In terms of making sales, many respondents indicated that their customers could make orders online or via phone calls and messages which allowed them to close the sales within a short time thus cutting down on costs from both the customers' end and the business' operations end. Online platforms that provide easy opportunities for customers to make orders remotely included Facebook, Twitter, Instagram, Websites and WhatsApp where customers view and inquire about the time of services and goods sold and then proceed to make their order.

In regards to the use of social networking sites for marketing business products and services, some of the respondents noted that they use these platforms to advertise and market their products. The respondents noted that the platforms provide real-time reach to customers of all ages and from any location, at any time. The fee involved in marketing goods and services through social media platforms also was noted to be lower compared to the cost of marketing through print media and television which has improved SMEs sales and growth. The use of Lipa and Mpesa mobile money services was highly ranked by most of the study informants to have had a great influence on improving the efficiency of SMEs. Many of the respondents for this study highly agreed that acceptance of payment via electronic services such as EFT, RTGs among others increases business

efficiency for SMEs. This approach has not only efficient but also convenient for many businesses since customers don't have to visit the businesses physically to make orders and payments but can comfortably do so via online services.

The results of the study demonstrate how ICT use increased business development and expansion, cost effectiveness, and product and service quality. According to the report, the usage of IT speeds up communication and gives access to real-time information, which helps with on-time performance and decreases service delivery times. Today, many SMEs don't need to seek for a laptop and modem—or even a cyber—in order to manipulate an excel spreadsheet with costs, save, and resend documents. Additionally, effective communication within the organization, data accuracy through the use of industry-standard communication platforms, and use of applications that validate against business rules enable the flow of information and thus harness efficiencies so that more tasks can be completed by less resources. These factors together reduce communication costs and increase data accuracy. A website and related website technologies have also helped SMEs increase sales, decrease fraud instances, learn what their consumers are saying about them, and change to a paperless environment, which lowers costs and requires less robust equipment to support the operation.

The study affirms that information technology causes improvement of service delivery and interlinkages within the various sectors of the business. The use of technology in business operations for example in making payments, and in marketing of products through online platforms led to reduction of costs such as transportation costs, communication costs, security costs and general operations costs that would normally be covered from the business income. The reduction in operation costs further led to an increase in profits. The study show that the most common forms of growth brought about as a result of IT use by SMEs were increased access to markets, opportunities for new markets, the growth of products including goods and services being offered.

### **5.3 Conclusion**

The research's findings are that IT tools such as mobile phones, computers, websites, copiers, printers and scanners are some of the most used information technology tools in businesses to support performance and raise the standard of products and services . The study demonstrates that the investment in information technology tools and services such as surveillance devices, computer

networks, social media, the internet and Television have a great influence on the efficiency of business activities.

The study also concludes that SMEs were using information technology services to a great extent. These include use mobile payment services to receive payment (such as Lipa Na M-Pesa); payment via online banking such as RTGS, EFT and Pesalink; use online banking and mobile banking for cash transfer services. The SMEs also greatly used social media to market their products, and also created online avenues where customers can make orders online or via call or message. Use of mobile payment services and online or electronic cash transfer platforms enhanced efficiency. The inferential statistics further showed that mobile payments, electronic funds transfer, online banking and promotion of the brand has a positive and substantial impact on performance of SMEs.

The study also concludes that ICT has a proven to play a significant role in SMEs. As deduced from the finding's information technology enables SMEs to promote their brand and market their products to a great extent; led to improved quality of goods and services; led market growth of their firms; and reduced the operations costs (such as transportation, communication, security costs) to a great extent. This reduction in operation costs led to an increase in profits in their firms.

#### **5.4 Recommendations**

The study recommends the following based on what has been said thus far:

Through the county government leadership, there is a need for training workshops and demonstrations of the advantages of modern information technology for all the enterprises involved in the trade, manufacturing and services sectors to tap fully into the benefits of IT.

The Kenyan government, through its line ministries, should think about allocating funds to promote knowledge of and encourage the most effective use of the information technology at the disposal of businesspeople in order to improve corporate performance. The government's departments of finance, youth affairs, women, industrialization, and Vision 2030 can make this a reality.

Financial institutions, the federal, state, and local governments, as well as other interested parties, to provide motivations to promote the expansion of business assistance services in the nation and for young entrepreneurs to create technological solutions for enterprises. This will enhance

entrepreneurs' comprehension of the pertinent ICT literacy needed to promote business performance.

Entrepreneurs' should work in coordination with the technological organizations to increase the use of ICT resources in the operations of SMEs. Additionally, they ought to consider the various suggestions made by the technology's users in order to develop more powerful yet neutral technologies that are simple to adapt to the SME environment.

### **5.5 Suggestions for further research**

Based on the above conclusion recommendations are made for further research to explore areas that touch on issues related to this study. As such, the study recommends further research on factors that motivate the adoption of IT tools by SMEs in Nairobi and other parts of the country. An elaborate study should be conducted with other businesses in the rural areas in Kenya to investigate the difficulties SMEs have adopting IT tools and appliances .

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## APPENDICES

### Appendix I: Informed Consent Form

#### Introduction

Good morning/afternoon. Thank you for taking the time to talk to me today. My name is \_\_\_\_\_ I am a masters' student at the School of Business of the University of Nairobi pursuing a master of science degree in operations and technology management.

You have been invited to take part in a research study, which is being conducted on '**Information Technology and Performance of SMEs in Nairobi County**'. Before you decide whether to participate, you need to understand why the research is being done and what it would involve. Please take the time to read or to listen as I read the following information. You may talk to others about the study if you wish. Please ask me if there is anything that is not clear, or if you would like more information. When all of your questions have been answered and you feel that you understand this study, you will be asked if you wish to participate in the study and if yes to sign this Informed Consent form. You will be given a signed copy to keep.

#### Researcher

The study investigator is **Christine Kithembe** of the University of Nairobi

#### Study Location

The study is being conducted among SMEs in Nairobi City County.

#### Purpose of the Research

**What is the study?** The purpose of the proposed study is to investigate information technology and the performance of SMEs.

**Why have I been invited to take part?** You have been invited to participate in the study because you hold an important position within the SMEs processes and therefore your views will be highly valued.

#### Description of the Research

**What will happen if I take part?** If you agree to take part in the study, we will ask you to sign this form. You will also be asked to respond to the questionnaire about your views and experiences on the research topic.

#### Risks

**What are the risks of the study?** There are no risks that you will experience as a result of your participation in this study.

#### Benefits

**What are the benefits of participating?** There are no direct benefits to you for participating in the study. You may find an indirect benefit in knowing that you participated in an important study that could inform policies on the uptake of information technology for SMEs in the country.

## Confidentiality

**Will my participation in the study be kept confidential?** The interview with you is confidential and will be conducted in private. We will not record your name on the interview form. In addition, your responses will be combined with responses from other respondents and this will be kept under lock-and-key.

## Voluntariness

**What are my rights as a research participant/subject?** Your participation in this study is completely voluntary. If you decide not to participate, you will not lose any existing benefits to which you are entitled. Refusing to participate will not affect your employment status. If you agree to participate in this study, you may end your participation at any time without penalty or loss of existing benefits to which you are entitled. You are free to withdraw from the study at any time.

## Additional Information

**What will I receive for participating?** You will not receive any compensation for participating in the study.

## Contacts:

**What if I need more information?** If you have a concern about any aspect of the study, you should ask to speak to the researcher and the supervisor who will do their best to answer your questions. You may call

**Christine Kithembe**

**Phone Number +254713068198**

Would you be willing to participate in the study?

Yes \_\_\_\_\_

No \_\_\_\_\_

**Respondent's statement:** I have read or have been read to the above considerations regarding my participation in the study. I have been given a chance to ask any questions and my questions have been answered to my satisfaction. I understand that the information I give will be kept private. I understand that I may withdraw from this study at any time. My withdrawal from the study or my refusal to participate will in no way affect my employment status. I agree to participate in this study as a volunteer.

\_\_\_\_\_  
Signature of respondent

\_\_\_\_\_  
Date

**Interviewer's declaration:** I, \_\_\_\_\_, have explained to the respondent in a language she or he understands the procedures to be followed in this study, and the risks and benefits involved.

\_\_\_\_\_  
Signature of interviewer

\_\_\_\_\_  
Date

## Appendix II: Questionnaire

**Investigator: MSC, Operations and Technology Management Graduate Student, University of Nairobi.**

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Questionnaire No \_\_\_\_\_ Date \_\_\_\_\_

As part of my course requirement, I am undertaking a research Title “Technology and Performance of SMEs in Nairobi County, Kenya”. Your Quick and honest response will be highly appreciated. Your responses will be treated with the highest level of confidentiality and shall not be used for any other purpose except for this academic research.

### **PART 1: DEMOGRAPHIC INFORMATION**

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1. Indicate your gender.

Male  Female

2. Indicate your age.

18-25 years  26-35 years  36-45 years  46-55 years

Over 55 years

3. Indicate your level of education

Certificate  Diploma  Bachelors' Degree

Masters' Degree  Other (specify) \_\_\_\_\_

4. Enter the following information about the organization.

a). Organization Sector type:

Service  Manufacturing  Trade

Description of nature of business

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b). Type of ownership

Sole proprietorship  Partnership  Limited liability company   
 Others (specify) \_\_\_\_\_

c). Number of years the business has been in operation

\_\_\_\_\_ Years

5. Position held in the business

Owner

Employee

Family

6. What is the estimated cash flow in a year in Kes

<0.5M       0.5M-5M       >5M

## **PART 2: TECHNOLOGY USE IN THE ORGANIZATION**

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### **A. Forms of information technology tools used in business**

7. Indicate the various forms of information technology tools and services that your business is using for the purpose of improving performance. Use the five Likert scale of 1-5 where 1= Very low extent, 2= Low extent, 3= Moderate extent, 4= High extent and 5= Very high extent. The results obtained from the study are shown in Table 7 below.

<b>Various forms of IT tools used in business</b>	<b>Very Low Extent</b>	<b>Low Extent</b>	<b>Moderate Extent</b>	<b>High Extent</b>	<b>Very High Extent</b>
Computers and Computer networks					
Mobile phones					
Websites					
Internet					
Copiers, printers & scanners					
Surveillance gargets					
Social media platforms					

TVs					
Mean					

**B. Extent of Use of Technology among SMEs.**

8. What is your level of agreement with the following statements?

Using a scale of 1-5 where **1= Strongly disagree, 2= Strongly disagree, 3= Moderately agree, 4= Agree, 5= Strongly agree**

No	In the organization;	1	2	3	4	5
1.	We use mobile payment services to receive payment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	We accept payment done via electronic transfer such as RTGS, EFT and Pesalink	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	We use online banking and mobile banking for cash transfer services.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Our customers can make orders online or via call or message.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	We use social media to market our products.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	The use of Lipa Na M-Pesa increases efficiency.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Acceptance of payment via electronic transfer such as EFT, RTGS, Pesalink increases efficiency.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**PART 2: TECHNOLOGY USE AND PERFORMANCE OF SMEs**

9. Use of technology to promote our brand and to market our product has led to an increase in customer base?

- To a Very great extent [ ]                      To a Small extent [ ]
- To a Great extent [ ]                              To a No extent [ ]
- To a Moderate extent [ ]

10. Use of technology has led to an increase in market share?

- To a Very great extent [ ]                      To a Small extent [ ]
- To a Great extent [ ]                              To a No extent [ ]
- To a Moderate extent [ ]

Number of customers in 2018 \_\_\_\_\_

Number of customers in 2019 \_\_\_\_\_

11. Use of technology has enhanced the quality of goods and services in our firm.

- To a Very great extent [ ]                      To a Small extent [ ]
- To a Great extent [ ]                              To a No extent [ ]
- To a Moderate extent [ ]

12. Use of technology (e.g. to market products and make payments) has led to a reduction of operation costs?

- To a Very great extent [ ]                      To a Small extent [ ]
- To a Great extent [ ]                              To a No extent [ ]
- To a Moderate extent [ ]

b). If yes, what costs have been reduced

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Total operation cost in 2018 \_\_\_\_\_

Total operation cost in 2019 \_\_\_\_\_

Percentage change in reduction cost \_\_\_\_\_

13. To what extent has reduction in operation cost led to an increase in profit?

To a Very great extent [ ]                      To a Small extent [ ]

To a Great extent [ ]                              To a No extent [ ]

To a Moderate extent [ ]

Total profit 2018 \_\_\_\_\_

Total profit 2019 \_\_\_\_\_

Percentage change in profit \_\_\_\_\_

14. How has the organization diversified its operation due to an increase in profits?

Opening of new branches

Increase in the number of employees

Additional product/services

15. In your opinion, which other technology would you recommend for use by SMEs.

a.

b.

**End of the Survey**

**Thank you for your collaboration.**

## **Appendix III: Key informant interview guide**

### **PART A: Background Information**

1. Gender: .....
2. Position/Title: .....
3. Years of service .....

### **PART B: Information relating to information technology and performance of SMEs**

1. What is your general understanding of information technology use and small and medium enterprises in this county?
2. Talk about knowledge and attitudes around the adoption of technology for SMEs and other such like businesses in this county?
3. Now can lets about the various forms of information technology tools that the SMEs in this county invest in?
4. How would describe the level of information technology use generally for most SMEs in this county?
5. What is the benefit that information technology tools give to these SMEs in this county?
6. What can be done to increase the uptake and investment in information technology by SMEs in the county and country?

**Thank you for participating and for your time**