ELECTRONIC COMMERCE ADOPTION AND PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES IN MURANG'A COUNTY, KENYA

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DECLARATION

I declare that the project proposal is my original work and has not been presented to any institution for the award of any degree. No part of this proposal should be reproduced without authority of the author or/ and Kenyatta University.

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I confirm that the work reported in this research proposal was carried out under my /our supervision.

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DEDICATION

I dedicate this work to my lovely wife Valentine and my daughter Camilla for supporting me and giving me the right environment to complete my MBA and project success. Their understanding and willingness to allow me to have time alone to do the project made it possible to complete the project over such a short period.

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LIST OF ABBREVIATIONS

B2B	**:**	Business to Business
C2B	**:**	Customer to Business
C2C	**:**	Customer to Customer
E-commerce	**:**	Electronic Commerce
GOK	**:**	Government of Kenya
IS	**:**	Information System
IT	**:**	Information Technology
MIS	**:**	Management Information Systems
NACOSTI	**:**	National Commission for Science, Technology and Innovation
PERM	**:**	Perceived e-readiness model
SME	**:**	Small and Medium Enterprises
SPSS	**:**	Statistical Package for Social Sciences
TAM	**:**	Technology Acceptance Model
TOE	**:**	Technology-Organisation-Environment
TPB	**:**	Theory of Planned Behavior
UTAUT	**:**	Unified Theory of Acceptance and Use of technology

OPERATIONAL DEFINITION OF TERMS

Computing Infrastructure: These are integrated structures which provides support and management for end-user computers, storage systems, servers, operating systems, ERP systems databases and middleware.

Drivers of e-commerce adoption: These are the elements come from an organization's internal and external business contexts, and their influence on decision-making are diverse.

E-Business: These are the applications of information and communication technology to improve business processes, such as manufacturing, customer relationship management, and internal operations management.

E-Commerce Topology: These are the element that comprises of Customer - to-Government (C2G), Business-to-Business (B2B) and Business-to-Customer (B2C).

E-Commerce: This can be defined as the buying and sale of information, goods, and services over computer networks.

E-Marketing: This can be described as the businesses use information and communication technologies for marketing and promotion activities to support e-business and e-commerce initiatives.

ICT Computing Skills: This can be explained as the skills of understanding and applying a range of computer programs, software and other applications.

Information Storage: This is the part of the accounting system which allows information processors to access data.

Performance of SMEs: Performance is the score of the firm, as either increased or decreased in revenue. It is calculated by dividing the value added (VA) by the total value added (VA) by the number of SMEs.

Service Delivery: This is a business concept that describes how providers and clients interact when the supplier provides a service, whether it's information or a work, and the customer gains or loses benefit as a result.

Small and Medium Enterprises: These are small and medium business which aims at generating independent revenue. A small business owned and operated independently in making critical decisions without seeking aid from employed specialists and at least understanding the functional management areas.

ABSTRACT

Small and Medium Enterprises (SMEs) have a lot of potentials when it comes to electronic commerce. There is evidence that SMEs in developing countries, such as Kenya, are reluctant to adopt e-commerce. Failing to reach an acceptable level threshold tends to hinder businesses from realizing the full benefits of technology adoption. The general objective of the study was: to determine the effect of E-commerce adoption and Performance of Small and Medium Enterprises in Murang'a county. The Specific Objectives of the study were: To determine effects of computing infrastructure, ICT computing skills, information storage and lastly, examine effects of service delivery and the Performance of SMEs in Murang'a County. A descriptive research design was used in this analysis, with a target population of 1239 respondents, with a sample of 124 who were either business managers or owners. The study used stratified sampling technique to sample owners and managers from transport saccos, shops, hardware shops, clinics and hotels. Primary data was obtained from managers or owners of the classified SMEs using questionnaires. Chronbach Alpha was employed to check the reliability of 0.809 for the predesigned questionnaires. Data was analyzed through descriptive, relational and inferential models. The study established that computing infrastructure, ICT computing skills, information storage and service delivery had a positive and significant on the Performance on SMEs. The study concludes that with the right operational methods to manage IT infrastructure, Performance in the company is improved. The study recommends the e-commerce adoption that has been used in the firm for some time, it will be fascinating to revisit the extent of entrepreneurial alignment tactically influences the connection between e-commerce adoption and SME results.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Globalisation and the rising trend of manufacturing methods have altered operations management, posing a novel problem for small and medium enterprises (SME). The majority of studies claim that the impact of information and communication technologies (ICT) on productivity is positive and important (Liao *et al*., 2016; Corrado *et al*., 2017). Taher (2012), when resources become scarce, can gain long-term competitive advantages by using them. Within that vein, ICT investments are essential in and of themselves due to the operational benefits of ICT usage and interdependencies with intangible assets like human resources, skills, and organisational capital. Electronic commerce (e-commerce) has emerged as a strategic tactic and platform for SMEs to stay competitive (Yang *et al*., 2015; Abebe, 2014; Raymond *et al*., 2011; Wirtz *et al*., 2010; Kapurubandara, 2009).

According to (Elseoud, 2014) the developments witnessed in the latest models of business, markets as well as new products in electronic commerce, have enabled better handling transactions of sales between the company and other organizations and even individuals. Small and medium enterprises (SMEs) make up the bulk of companies worldwide, with an estimated 420 million to 510 million SMEs in 2015 (International Trade Centre, 2015). Online applications are not limited to any one stage of the business production chain and can be applied to a wide variety of industries and businesses. Brand design and manufacturing, and logistics have been found among early adopters of electronic commerce technologies in the United States (OECD, 2000).

Firms learn to use and manipulate technologies over time. They work to improve unique organisational competencies, which leads to a higher level of ICT maturity and implementation. They can reap more incredible benefits by gaining experience in finding, implementing, and using

ICT. Since ICT adoption and performance is a multi-phased mechanism that assumes an evolutionary path. The firm's contributions and complementarities with organisational skills are crucial in this evolutionary phase (Rivas and Stumpo, 2011). Between 2006 and 2014, Internet penetration in Latin America more than doubled, rising from 20.7 % to 50.1 % of the total population. A 76% of Latin American Internet users have used online stores. Furthermore, relative to retail, the number of electronic commerce businesses is low. Online shopping in Argentina will account for 2.9 per cent of overall retail sales.

The Boston Consulting Group (2012), the growing interest in studying ICT usage and electronic commerce in developing countries is focused on their ability to generate value, even though, although less value than other developed countries. CEPAL (2013) observed that in 2010, the Internet contributed 3.6 per cent of Gross Domestic Product (GDP) in emerging markets. On the other hand, a large proportion of SMEs is low-productivity businesses with insufficient organisational structures. Along with financial constraints and a lack of human capital, these characteristics create obstacles to ITC adoption.

Faloye (2014) almost every African capital city now has some amount of internet connectivity. Nevertheless, there are still substantial gaps in internet use across Africa's various regions; however, the global growth of internet users has significantly increased in recent years. Despite the possible benefits of e-commerce, Nigerian SMEs are slow to embrace the technology. Manyika *et al.* (2013), the Communication Authority of Kenya (CA), announced in 2013 that the number of internet users in Kenya had increased to 21.2 million. The use of cell phones and the internet in Kenyan cities is much higher than in rural areas. The country has a 72 per cent mobile phone penetration rate. In urban areas, 72 per cent of people are online, 95 per cent have internet-capable

phones, and 31% own smart phones (Manyika *et al.*, 2013), demonstrating the widespread availability of the internet.

Although the situation has changed, various aspects of the local environment, both infrastructural and socioeconomic, have resulted in noteworthy differences in the development and acceptance of e-commerce in different parts of the world (Lang, 2003). Besides the possible gains of e-commerce, the degree of adoption among Kenyan SMEs in Murang'a county is low (Ndung'u, 2016). This study aimed to explore the e-commerce adoption and performance of SMEs business owners used in implement e-commerce systems. The study results were to create more interest among Murang'a SMEs business owners in employing e-commerce to enhance the effectiveness of their organisations.

1.1.1 Adoptation of Electronic Commerce

Turban (2010) notes that e-commerce technology is widely acknowledged and has several potential benefits for entrepreneurs. Some of the main benefits uncovered by the existing e-commerce literature are; reduced costs, increased efficiency, increased revenue, expanded consumer scope, reduced time processing, and increased customer loyalty. The benefits of e-commerce are presumed to be amongst the reasons that have made it famous among companies, as shown by the dramatic increase in e-commerce users' year over year.

According to a study by IDC (2011), 624 million users of the internet purchased products online in 2009, generating approximately $8 trillion in earnings; by the end of 2013, that figure was expected to have risen to more than $16 trillion in transactions. Asia is also experiencing tremendous growth. The number of internet users rose significantly between 2000 and 2015, according to data published by The Internet World Statistics (2015). In June 2015, 1.56 billion people in Asia used the internet, compared to 114 million in 2000. Scholars like Govindaraju *et*

al. (2015); Alam *et al.* (2011); Chiliya *et al*., (2011) point out that large corporations, on the other hand, are driving the increased use of e-commerce by enterprises. The adoption of e-commerce by SMEs lags behind that of more giant corporations.

E-commerce is the purchasing and selling of goods or services over electronic platforms like computer works and the internet (Akanb & Akintund, 2018). Electronic commerce is characterised as using a variety of technology, including electronic funds transfer, Internet marketing, supply chain management, online processing of transactions, inventory management systems, electronic data interchange (EDI), and automated systems of collecting data. Modern e-commerce often employs the World Wide Web (WWW) at some point during the transaction's life cycle, though it can often employ other technology such as mobile devices, e-mail, and telephones. Turban *et al*. (2008) differentiate between offline and online e-commerce, the latter of which involves purchasing and paying for services or goods using. For instance, a smart card via vending machines and transactions conducted over networks like local area networks (LANs), single computerised devices, or even intranets.

Kalakota (1997) points four major business models of e-commerce. The industry models of business-to-consumer (B2C), Business-to-Business (B2B), consumer-to-business (C2B) and consumer-to-consumer (C2C). Customers to Government and Government to Customers are two other business models. In contrast to conventional offsite customer purchases of products and services, e-commerce has some distinct characteristics, such as the distance and impersonal existence of the online world. E-commerce has made it easier for various parties to gather information, mine data, and use it. Furthermore, the reliability of the underlying Internet and related networks that Web retailers use to interact with customers is a source of concern (Salisbury *et al*., 2001).

According to Thompson and Ranganathan (2004), businesses have a much better opportunity to embrace e-commerce than consumers due to the numerous apparent benefits to businesses, including significant cost savings in transaction costs, increased productivity, and strategic flexibility through the creation of more complex and flexible partnerships with key business partners. Researchers determined great growth in e-commerce around the world, as evidenced by the large volume of services and goods exchanged among companies, mostly in the B2B setting (Alam *et al*., 2007; Cullen & Webster 2007).

According to Hinson and Sorenson (2006), business-to-business (B2B) e-commerce figures grew over previous years, with projections starting from $200 to $600 billion around the world for the year 2000 expected to exceed $12 trillion by the year 2006. The rapid and continuous growth of e-commerce has provided tremendous benefits to businesses, including SMEs, by allowing them to enter foreign markets that were previously hard to enter because to high costs of transaction and other barriers to market entry (UNCTAD, 2004).

Several studies on e-commerce adoption have been undertaken. Notwithstanding, the vast majority were carried out in developed nations, with only a handful focusing on SMEs and developing countries (Kurnia *et al.* 2015; Parker and Castleman 2007). Thus has a substantial impact on SMEs' understanding of e-commerce acceptance, especially in developing countries. Furthermore, most previous research focused primarily on vertical issues, such as factors that promote (or create barriers to) e-commerce use, instead of downstream issues, such as the studies that concentrate on benefits attained after adoption (Molla & Heeks, 2007).

Many barriers to SMEs adopting e-commerce have been identified by researchers, especially in developing countries. Dubelaar *et al.* (2005) described a lack of human capital, lack of funding, internal opposition, unready client’s security concerns, internal restrictions, unready business

partners, a lack of IT resources, as well as a lack of significant obstructions to B2C e-business adoption by small businesses. However, to Salwani *et al.* (2009), understanding the factors that promote or inhibit adoption, especially for SMEs, is critical, but understanding how such adoption benefits business efficiency. He further notes why SMEs were still hesitant to embrace e-commerce technology due to; lack of e-commerce experience, the lack of success stories, and lack of awareness about the possible effect of e-commerce application on firms.

However, affirm that there is much that needs to be done to ensure that SMEs in the county of Murang'a get to benefit fully from the competitive edge created by electronic commerce. This research details the results from the research, and recommendations were provided to help SMEs in the county become better. As a result, to fill this void, this study aimed better to understand e-commerce adoption by SMEs in Murang'a County, identify the e-commerce benefits realised by these SMEs, and investigate the connection between e-commerce adoption levels and SMEs' results.

1.1.2 Performance of SMEs

Njau and Karugu (2014) surveyed the impact of electronic marketing on the Output of SMEs in Kenya. The analysis used a survey research template and a simple random sampling method to select a sample that matched the entire population to obtain data from respondents. SEO marketing, blog marketing, mail marketing, and the use of online ads all had a positive effect on the success of SMEs in Kenya, according to the results of the study. On the other hand, the research did not consider other E-commerce elements, including user skills, computing infrastructure, e-commerce service, and e-commerce information, that this study did.

Musa *et al*. (2016) focused on social media marketing and the success of online small and medium businesses from Malaysian small and medium enterprises. The study used a descriptive research

design with quantitative data as the basis for interpretation. The study looked at how SME performance is influenced by brand recognition and image, consumer engagement, and customer brand attitudes. The study's findings revealed that using social media platforms for online marketing has boosted SME success in Malaysia. However, the study was carried out among Malaysian SMEs, while the current study only looks at SMEs in Murang'a County.

Sheikh, Shahzad, and Ishaq (2017) investigated the growth of e-marketing in the business-to-business industries and its impact on business performance in Pakistan. Cross-sectional data from 257 manufacturing firms in Pakistan was used in the study. The normality test found a statistically significant relationship amongst innovation strategy, managerial support, e-marketing use, and firm performance in Pakistan. The previous analysis used secondary data from marketing studies, while this used a combination of primary and secondary data.

Internet Use in Supply Chain Management and its Effect on Overall Efficiency on a Swedish SME Perspective (Jung *et al*., 2015). The study used a causal research design, and the findings revealed no statistically significant correlation between internet use and supply chain quality. Eze and CO (2017) investigated how small and medium businesses in Nigeria's the South Eastern States use e-marketing applications. The study used a survey research design with a sample of 1,846 SMEs (owners/managers) in the field. The study employed a stratified random sampling methodology. The study's findings revealed that SMEs improved their efficiency by incorporating E-commerce and e-invoicing marketing applications into their operations

The fast growth of the Internet has resulted in an upsurge in the adoption of e-commerce business models by businesses worldwide. Improvements in operating productivity, increased sales, and the ability to use e-commerce as a platform to gain competitive advantage are all possible benefits of SMEs embracing e-commerce (Dan, 2014). In today's global economy, SMEs are a critical market.

SMEs account for more than 95 per cent of all businesses globally, contribute roughly 50 per cent of GDP and recruit 60 per cent to 70 per cent of the workforce (International Trade Centre, 2015).

The understanding of SMEs varies from country to country (Badrinath, 1997). Ghouri *et al.* (2011) the number of workers or the maximum revenue a company may have long been used to describe SMEs. Micro businesses, for example, have been described as those with fewer than ten employees and annual turnovers of less than KES 500,000. On the other hand, small businesses have annual turnovers between KES 500,000 and KES 5 million and hire between 10 and 50 people.

Small and medium-sized business owners, it has been stated, face significant challenges in adopting electronic commerce. Limited resources and technological skills, the size and affordability of information technology, and the ease of implementation within increasingly increasing and evolving organisations are some of the challenges they face (Raisinghani *et al.*, 2005; Wanjau *et al*., 2012). Standard solutions designed for large, stable, and globally focused businesses do not work well for small, dynamic, and locally-based firms that are popular in developing countries (Wang and Cheung, 2004).

Research on electronic commerce's adoption, assessment, and benefits in developing countries focus on large organisations (Lin, 2005). However, small and medium scale enterprises (SMEs) in Kenya, like many other developing countries worldwide, are seen as significant engines of growth in terms of job creation, poverty alleviation, and global competitiveness. Furthermore, SMEs account for approximately 82 per cent of total industrial jobs and 10-15 per cent of total manufacturing production in Kenya (Akanbi, 2016).

1.1.3 SMEs in Murang'a County

According to Mwewa (2013), SMEs are an essential part of the Kenyan economy, as they are in many other developing countries since they hire 85 per cent of the Kenyan workforce directly. In Kenya, most businesses are owner-managed or primarily owned and operated as a family company, with a small capital base and technical skills and capacity of those in charge. The majority of businesses in Murang'a County are small and medium-sized enterprises (SMEs). They are dispersed across the county, with a high percentage of sole proprietorships and family-run corporations (Karanja, 2012).

SMEs help diversify the economy and maintain social stability while also contributing to the growth of the private sector. SMEs can operate in any economic sector (primary production, manufacturing, and services) and can be owned as sole proprietorships, partnerships, or private limited companies. Others are informal and operate in market stalls and shops, while others are more formal and use in market stalls and shops (Munoz, 2010). Because of SMEs' significant contributions to the economy, Andoh & Nunoo (2011) see a crucial need to promote a favorable operating environment for their growth in developed and developing economies.

However, most of these researchers looked at consumers' viewpoints and were satisfied with SMEs' adoption. As a result, the primary goal of this research was to look into the effect of e-commerce adoption on the performance of SMEs in Murang'a County. Finally, the study aimed to contribute to empirical studies on e-commerce adoption and SMEs' success in the limited body of literature in the field, especially in developing nations.

1.2 Statement of the Problem

Kshertri (2010), e-commerce has become an essential element of business in many developing countries in the recent past, as shown by the substantial benefits it provides. Many major

corporations have adopted them, giving them a strategic edge over MSMEs. SMEs are becoming increasingly relevant in developed countries because they account for a significant portion of the company population. Many countries and nations worldwide are working to improve SMEs because they play such an essential role in economic growth (Turban, 2006). On the other hand, Abebe (2014) SMEs who use e-commerce in business transactions increase their revenues faster than their non-e-commerce rivals. The majority of SMEs in upcoming economies cater to local markets and depend mainly on local content, and knowledge is at the root of this.

According to available evidence, the SMEs area is characterized by the slow adoption of e-commerce, which impedes the growth and competence of firm operations. Investment in e-commerce innovations has slowed market transformation and, as a result, expansion. Due to the aforementioned low penetration, developing countries, including Kenya, have not reaped the full benefits of e-commerce investment (Kurnia, 2006; Ignore, 2009). Payne (2007) notes that various challenges SMEs face include expanding, financial support, business broadening, and good business practices. As a result, small and micro-sized businesses with limited opportunities and strengths when competing against large international companies can find a way to avoid the challenges posed by their small size by taking advantage of the many benefits that electronic commerce provides. SME's have been pushed to increase their success in developed countries by the need to survive and compete.

The theory-based comprehension of SME e-commerce conditions lacks, more so in developing nations. E-commerce adoption in SMEs must consider the diverse existence of SMEs and internal and external factors that impede e-commerce adoption (Castleman, 2009). Only a few Small and Medium Enterprises (SMEs) in Murang'a County have implemented e-Commerce. Due to inadequate computing infrastructure, ICT computing skills, information storage, and service

delivery in SMEs have led to little use of e-commerce and slow development and growth rates in SMEs within the county of Murang'a. They are, in reality, a key element of Murang'a's economy. On the other side, technological advancements have made it more difficult for SMEs to compete. This study aims to discover what reasons encourage SMEs to embrace E-Commerce and the impact of adoption on SMEs' performance to understand e-Commerce better.

1.3 Objectives of the study

1.3.1 General Objective

To determine the effects of e-commerce adaptation and performance of small and medium enterprises in Murang'a County.

1.3.2 Specific Objectives

i) To investigate the effect of computing infrastructure and the performance of SMEs in Murang'a County
ii) To assess the influence of ICT computing skills on the performance of SMEs in Murang'a County
iii) To evaluate the effect of information storage on the performance of SMEs in Murang'a County
iv) To examine the effect of service delivery and the performance of SMEs in Murang'a County

1.4 Research Questions

i) How does computing infrastructure affect and the performance of SMEs in Murang'a County?

ii) What is the role of ICT computing skills on the performance of SMEs in Murang'a County?

iii) How does information storage affect the performance of SMEs in Murang'a County?

iv) How does services deliverly affect the performance of SMEs in Murang'a County?

1.5 Significance of the study

This research aims to add to the body of knowledge by answering the research question of the connection between e-commerce implementation and SMEs' results. This study adds to the body of knowledge by supplying empirical evidence on the impact of e-commerce implementation and entrepreneurial alignment on SME performance. The study was also based on the fact that, despite the significant potential benefits of new technology adoption for SMEs, there is evidence of slower adoption.

Comprehending the factors influencing e-commerce adoption is essential for the public and government sector in developing guidelines and interpositions that will assist providers in delivering appropriate technologies that will appeal to potential SME consumers. This research gives a theoretical as well as empirical basis for e-commerce and technology entry research in this vital field of Kenya's economy. The study approach and subsequent findings should be sufficient to direct future studies for both academics and students. Furthermore, the research will act as a gateway for rekindling interest in this vital field of research.

1.6 Scope of the Study

Murang'a County was the research's geographical scope; the sample population was taken from the township of Murang'a and its environs. The reason for narrowing down the geographical range was because of the limited resources and time. The criteria and rationale behind choosing the area were its mixed-use of e-commerce applications and operations.

At the time of the study, the interest firms were legally licensed and under the Kenya Revenue Authority's (KRA) taxation requirements and business permits from the county government. The main market sectors looked at were: transport services, manufacturing, retail and wholesale shops, hotel and catering services, among others operating across Murang'a County. The researcher will target 1234 business owners and managers working in the SMEs as they have firsthand information on what is currently being researched. Managers and some research employees were the main targets of the research as they had enough information required to complete the examination. Quantitative, descriptive, and inferential methods were used in the study, with proportions, chi-square analysis, graphical representation, and logistical regression methods.

1.7 Limitations of the Study

First, the research made cross-cultural comparisons to studies conducted around the world. While such a reference was perhaps not entirely fitting, it was unavoidable given the scarcity of past research on e-commerce and its impacts on business activities and operations management in Sub-Saharan Africa, especially in Kenya. Second, the study's methodology was designed to reach many e-commerce implementers in Murang'a from various sectors. Furthermore, respondents' lack of understanding of the definition of e-commerce and its position in the overall operations role of the firm may have influenced the accuracy of the results, especially among micro and small businesses. Third, the research design was descriptive cross-sectional rather than longitudinal analysis, which is more suitable for adoption studies. However, the longitudinal research design could not have been implemented in this report in the absence of relevant data.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section provides the theoretical review that provides an overview of theories that premised this study on the adoption of e-commerce and the performance of SMEs. Also, the chapter presents a linkage establishing the current relationship among these variables. The empirical literature related to the research variables and the various research gaps were reviewed. Finally, the summary of research gaps and the conceptual framework showing the relation of critical variables. The main research gaps covered in this project include: factors leading to improved SME performance, effects of ICT computing skills on the adoption and success of e-commerce in business, the impacts of computing infrastructure on the implementation and use of e-commerce in SMEs, how the availability of information affects the adoption and success of e-commerce adoption in SMEs and how the availability of e-commerce services affect the success of an orgaization's performance. The conceptual framework covers the study variables, with the dependent variable being performance of SMEs and the independent variables being Computing Infrastructure, ICT Computing skills, Information Sorage and Service Delivery.

2.2 Theoretical Review

This part examines the several theories that exist to explain how technology like e-commerce has been adopted and the different factors that affect its adoption along with the potential benefits in SMEs, including; Technology Acceptance Model (TAM), Technology Organization Environment Model (TOE), Perceived Organisational E-Readiness (POER), Theory of Planned Behaviour (TPB) and Unified Theory of Acceptance and Use of Technology (UTAUT). The research explains an understanding perceived from the five theories and uses various principles which go in line with E-commerce adoption. The process of adopting e-commerce is a decision that is very involving

and therefore needs conscious efforts five theories and uses various principles which go in line with E-commerce adoption. The process of adopting e-commerce is a decision that is very involving and therefore needs conscious efforts to be put to reduce the anticipated social, financial and technical risks linked to e-commerce adoption (Ramanathan, Ramanathan, & Hsiao, 2012).

2.2.1 Technology Acceptance Model Theory

Davis (1989) coined the term Technology Acceptance Model (TAM) to describe how people in organizations adopt new technologies. According to Davis' TAM model, the two most important factors of technology adoption are perceived usefulness (PU) and perceived ease of use (PEOU). Many studies on the adoption of information systems (IS) have relied on the TAM (Lee et al. 2003; Nyoro et al. 2015). The model defines perceived usefulness as the degree to which an individual will be certain that using a particular system on a regular basis will improve his or her job performance. While perceived ease of use is the degree to which an individual believes that utilizing a specific system would be free of physical and mental effort (Turner et al. 2010).

The theory is the oldest and regarded as among the first theories for covering Information Technology (IT) adoption. The theory provides the basis behind understanding the effects of the external variables while adopting e-commerce, with its primary assumption being made on attitudinal, economical and practical grounds. Many of the theory's supporters argue that perceived usefulness is affected by the perceived ease of use, and the two can easily predict people's attitudes (Ramanathan, Ramanathan & Hsiao, 2012).

TAM has been utilized as a framework for understanding e-commerce adoption in firms, including SMEs, by a number of e-commerce academics. TAM, for instance, was used to analyze the utility and ease of adopting e-commerce amongst SMEs in the industrial and service sectors in Singapore, Malaysia, and Thailand (Nezakati et *al*. 2012). TAM has also been utilized to evaluate the impact

of perceived system risk on tourism firms' intentions to use e-commerce in Algeria (Belkhamza and Wafa, 2009). TAM was praised in both tests as a valuable paradigm for understanding and explaining a customer ’s intention to utilize ecommerce.

TAM is a significant paradigm that has been used to analyse the use, behavior, as well as attitude toward e-commerce adoption in various SME studies (McCloskey, 2004; Belkhamza & Wafa, 2009; Johar and Awalludin, 2011; Nezakati et al. 2012). Notwithstanding its prominent position in information systems research, particularly e-commerce adoption, the model has a number of flaws. Thus according Nistor et al. (2014), TAM relies on perceived usefulness as one of the most important acceptance signal, ignoring actual technological use. This is problematic since Nistor et al. (2012) claim that the association between a person's reported purpose and actual usage behavior is non - significant.

The Theory of TAM states that people’s behavioural intentions towards adopting specific technological ideas and applications depend on the people's attitude towards the technology’s use. At the same time, perspective is determined by eliminating the vulnerable risks referred to as barriers in this research. The theory of TAM suggests that beliefs or perceptions about innovation are essential when creating attitudes that will eventually lead to the behaviour exhibited towards utilising the system (Bertrand & Bouchard, 2008).

The level to which an individual assumes that using e-commerce can them attain performance gains is called performance expectancy. In contrast, effort expectancy refers to the effort that the consumer is expected to put into learning and running e-commerce is called effort expectancy. The degree to which a person believes that essential others believe that he or she can use e-commerce, on the other hand, is known as social influence. Finally, enabling requirements to apply to the

provision of assistance to users in terms of computer hardware and software required for e-commerce operations (Kholoud, 2009; Venkatesh *et al*., 2003).

Customers' attitudes toward M-banking use were significantly affected by apparent ease of use, perceived utility, perceived self-efficacy, and supposed reputation, according to their application of TAM to research adoption of M-banking in Kenya. However, there was no statistically significant connection between perceived usefulness and adoption attitudes. TAM is applicable and relevant in this research because e-commerce adoption in SMEs can be impacted by the perceived ease of use and perceived usefulness. TAM is applicable as it considerably impacts aspects like external control perceptions, image, and computer anxiety, which all affect e-commerce adoption (Lip-Sam & Hock-Eam, 2011). Below is a demonstration of how TAM factors interact;

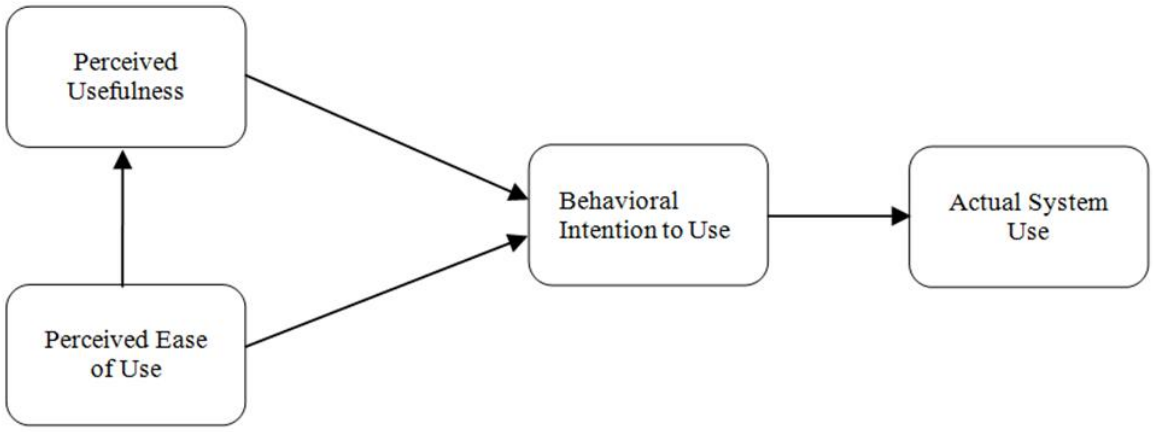

Figure 2. 1 Technological Acceptance Model

Sources: Venkatesh, et al. (2003)

As a result, studying real use of technology instead of perceived use, as TAM typically does, is as significant. TAM, according to Parker & Castleman (2009), is not suited for evaluating e-commerce adoption in SMEs on its alone since it ignores SMEs' contextual elements. As a result,

one can agree with Parker and Castleman (2009) that SMEs in developing nations face more complex difficulties than merely their behavioural goals, such as infrastructural and societal issues. Thus, the theory was of significance in exploring the computing infrastructure variable as an indicator in adoption of e-commerce in SMEs. The research revealed a scarcity of studies that discuss incorporating efficacy into other models in a broad sense. As a result, the analysis was limited to proposing the incorporation of TAM with other models based on a literature review. Other studies recommend that future studies concentrate on empirical confirmation of the conceptual model.

2.2.2 Technology-Organization-Environment Theory

Tornatzky and Fleischer (1990) developed the Technology Organization Environment (TOE) framework to describe the elements that influence a company's decision to accept innovation. According to the framework, three variables drive technological innovation in organizations: the technological, the organizational, as well as the external environment. In view, the factors impacting different business firms in adopting new technology are categorized into three major dimensions: environment, organisation, and technology. Informal and formal procedures, communication systems, and the scale of the organization are all organizational elements. Characteristics including such state regulation, market structure, and technical infrastructure make up the environmental elements. The availability and features of technology are included in the technological context. (Low *et al*., 2011).

TOE has been utilized in studies on e-commerce uptake in small businesses. Huy et al. (2012), for instance, used the TOE framework to uncover the characteristics that influence e-commerce adoption in 926 Vietnamese SMEs. They discovered that the primary constraints impacting e-commerce adoption in Vietnam were really a shortage of experienced staff, a scarcity of resources,

communication barriers between SMEs and supporting organizations, a restricted option for online transaction, and a cultural barrier to digital purchases. The TOE framework, according to Huy et al. (2012), can be used to analyze the external and internal aspects that can impact ecommerce adoption for all types of SMEs in Vietnam.

Thus, the theory assumes that a generic group of factors can be applied in predicting the probability of e-commerce being adopted. At the same time, the theory proposes that adoption is affected by the development in technology, conditions of the organisation, organisational and business reconfiguration, and the industry's environment. The context of technology explains adoption as being dependent on the group of technologies in the company and the features of the e-commerce application, the perceived gains, organisational and technical compatibility, experimentation ability, complexity and observability (Zaied, 2012).

Some of the characteristics in the adoption predictors are assumed to be more applicable to large organizations due to their abundance of resources, which is one of TOE's shortcomings in respect to SMEs in underdeveloped nations. As a result, TOE alone is insufficient to explain SMEs' adoption of new technologies (Awa et al. 2012). As a result, Awa et al. (2012) proposed that combining TOE and TAM would provide a richer theoretical lens for understanding e-commerce adoption by SMEs in developing countries.

The framework of TOE goes through three sections of adoption prediction called; internal characteristic, leader features to change and external features. According to Njau and Karugu (2014), one of the main drawbacks of the TOE is that some of the constructs used in predicting adoption are taken to apply to bigger companies whereby the clients have the assurance of continuity and little complaints as compared to the SMEs. The figure below describes the three dimensions of the TOE;

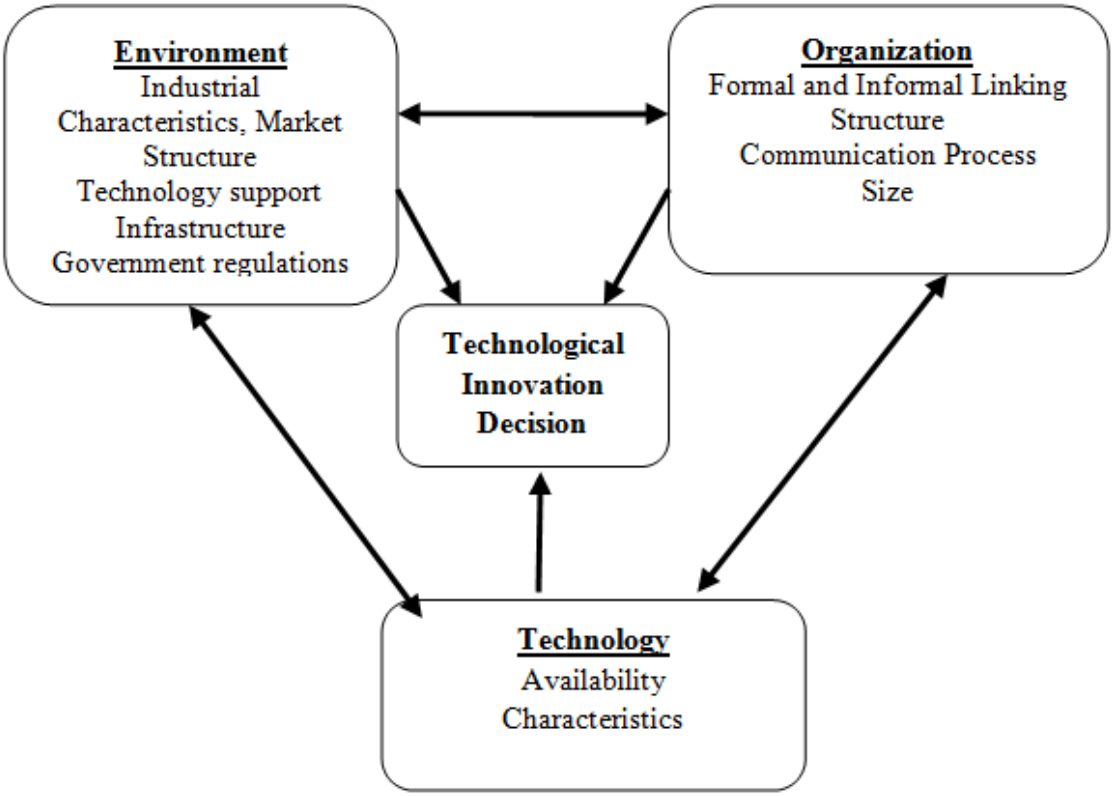

Figure 2. 2 Technology-Organisation-Environment

Source: Tornatzky and Fleischer (1982); Low et al., (2011)

The context of technology entails the internal and external technologies which apply to the company. The technologies may entail both processes and infrastructure (Zaied, 2012). The organisation's context entails the resources and features of the company, including the size of the firm, the centralisation degree, level of formalisation, human resources, the structure of management, lack of resources amount, and connections between employees. The context of the environment entails the structure and size of the industry, the competitors of the company, the regulatory environment and the entire economic context (Njau, & Karugu, 2014). All three elements above provide opportunities and constraints for technology innovation. They impact how the company views the need for new technology, searches for new technology and adopts new technology (Zaied, 2012).

The study found out that most TOE research studies focused on e-businesses and innovation adoption but that transparency concerns were rarely discussed. . The Technology-Organization-Environment (TOE) explains the right environment and conditions under which e-commerce can be adopted in Murang'a County to improve the performance of SMEs (Zaied, 2012). This study proposes that the TOE paradigm be expanded to include three additional variables: openness to technology, openness to organisational culture, and openness to the external world. Further, the study revealed the existence of a gap in external stress that has impacted the probability of promoting the advancements of technology adoption and its performance on organisations (Aboelmaged, 2014; George & Yoon, 2013; Leung *et al*., 2015; Lin, 2014; Low *et al.,* 2011; Oliveira *et al.*, 2014). These variables are often discovered to be essential and have a positive impact on adoption decisions. As a result, it's fair to speculate about and assess their effect on ICT computing skils on adaptation of e-commerce on SMEs and their performance.

2.2.3 Perceived E-Readiness Model

The model was developed by Licker and Molla (Mutua, Oteyo & Njeru, 2013). The interactionism paradigm inspired the theoretical foundation of the Perceived E-Readiness Model (PERM). Molla and Licker proposed that a multi-perspective assessment of managerial, internal organizational, and external contextual elements might provide a useful predictor of electronic commerce adoption in developing nations, based on this approach. For the context of developing economies. The model considers the internal factors in the organisation called perceived organisational e-readiness (POER) and external factors called perceived e-readiness (PEER) as vital for the adoption of e-commerce. According to Lip-Sam & Hock-Eam, (2011), POER entails the following elements: the organisation's awareness, understanding, and forecast of e-commerce and its possible risks and

benefits (imperative innovation attributes), its managers' engagement, and vital organisational elements such as personnel, procedures, and business infrastructure.

The PEER represents a company's evaluation and assessment of the factors in the external environment like the e-readiness of governments, e-readiness for market forces, and e-readiness for support industries. According to Lawrence & Tar (2010), PERM can help companies in the developing economies point out, measure, and manage the risks existing in the activities of e-commerce adoption (Lawrence & Tar, 2010).

Studies conducted in China validated and tested the perception of the e-Readiness Model. They realised that most problems associated with B2B e-commerce are related to the perception of social-cultural factors and Organisational e-readiness (Aljifri *et al*., 2003). PERM addresses e-commerce institutionalisation and includes detailed external environmental and internal organisational concerns, thus is more comprehensive than previous models. It is more critical to the environment of developing countries than earlier models since it was created explicitly to take into account contextual variables in developing countries (Tan *et al*., 2007).

Few models have covered e-commerce institutionalisation, so PERM is well recognised for including it. However, one of PERM's weaknesses is that it leaves out essential industry features like sector and firm scale. Furthermore, when applying for PERM, the failure to capture employees' educational backgrounds is a problem. According to PERM, individual factors have little impact on e-commerce adoption, which emphasises organisational characteristics as essential to e-commerce in the organisation. Slight firm peculiarities are also missed by PERM (Parker & Castleman, 2009; Drew, 2003). Perceived e-readiness Model that explains how people perceive new technology, their rate of adoption and this is related to the research as it would explain the factors and adoption of e-commerce in Murang'a County and how it affects the performance of

SMEs (Mutua, Oteyo & Njeru, 2013). Basing from the discussion, the PERM theory depicts how information storage has been adopted in e-commerce by various enterprises across Murang'a county.

2.2.4 Theory of Planned Behavior

Ajzen proposed the theory in the year 2001, and it has a psychology background. The theory states that three concepts predict the willingness to use innovation, and they perceived behavioural control, subjective norm, and attitude. Attitude comes from mental beliefs, and it entails a person's negative or positive feeling on achieving the intended targets. The personal model shows the social influences on behaviour and the perception of if other people who are vital to an individual believe control of conduct represents the constraints in behaviour and entails the perceived difficulty or ease of performing a particular task (Zaied, 2012). The theory of Planned Behavior explains how people are willing to use e-commerce and how this has affected the performance of SMEs in Murang'a County (Lip-Sam & Hock-Eam, 2011).

Research carried out by Kurnia *et al.* (2015) entailed a combination of TAM and TPB in studying the decisions made by executives in business in adopting the use of Internet-related technologies. The research indicated that enhanced social contact with the vendors and customers offered by the internet is the primary driving force behind the adoption of websites and internet use. The research also observed that the results from the study agree with the idea of TPB. Still, individual attitudes tended to have more weight than perceived control of behaviour and subjective norm.

The theory is applicable and relevant to the current research in that e-commerce adoption in SMEs can be affected by the subjective norm, behaviour, and perceived control of behaviour that is captured as factors of attitude, cultural and social factors, and barriers, respectively (Riemenschneider *et al.*, 2003).

According to the study, perceived benefits, Internet sophistication, usability, and management support all have statistically significant effects on e-commerce adoption. The study findings also seemed to be in line with with the TPB, besides attitude seeming to matter more than subjective standard and perceived behavioural regulation. The study also discovered that fostering factors that typically impact organisations in the advanced stages of e-commerce adoption did not affect Murang'a's decision to embrace e-commerce. The TPB theory was of importance in relating with service delivery adopted in e-commerce from the discussion, basing on perceived behavior between the customer and the vendors.

2.2.5 Unified Theory of Acceptance and Use of technology

Venkatesh and other scholars created the theory. The theory aims to explain users' intentions to utilise information systems and users' successive behaviour. The main idea behind the theory is that there are four main concepts called; facilitating conditions, social influence, effort expectancy and performance expectancy. Experience, gender, and age and the willingness to volunteer of the users are suggested to control the effect of the four major constructs on usage and behaviour (Ramanathan, Ramanathan, & Hsiao, 2012).

UTAUT has been used or modified to better understand the uptake of e-commerce in poor nations. Ndayizigamiye (2012), for example, used UTAUT to investigate the factors that influence e-commerce adoption in South Africa, employing a sample of 180 SME's. Waehama et al. (2014) praised the UTAUT model for its ability to explain more than 70% of technological acceptance behavior compared to other models that only explain 40%, as well as its ability to predict the adoption of impending new technology. The figure below illustrates key features of UTAUT;

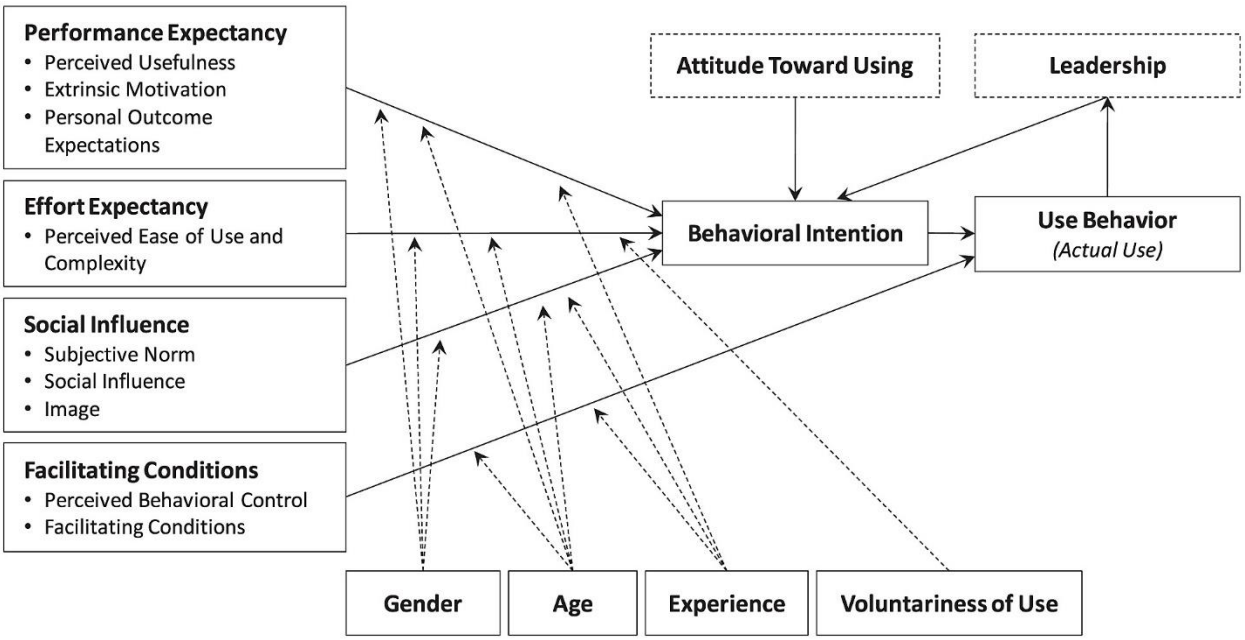

Figure 2. 3 Unified Theory of Acceptance and Use of Technology
Source: Venkatesh et al., (2003).

UTAUT is significant in the research in that e-commerce implementation in SMEs can be impacted by expectancy in performance, social influence, effort expectancy, and other facilitating conditions. Expectancy in the account is a response to perceived usefulness in TAM and is represented by attitude factors. The social influence is indicated by barriers in the environment and other conditions that facilitate and describe the organisation's obstacles towards adopting e-commerce. The UTAUT model was found to impact intention significantly to use, with the success expectancy factor placing importance on intention to use, the effort expectancy factor affecting choice to use, and the social effect factor having a important impact on intention to use. Unified Theory of Acceptance and Use of technology explains how people collectively accept and use technology such as e-commerce, which is linked to SMEs' performance that uses the technology (Ramanathan, Ramanathan, & Hsiao, 2012).

2.3 Empirical Review

This part of the literature will review on the project variables which include: computing infrastructure, ICT user skills, availability of information storage, availability of service delivery and performance of SMEs as the main variables of the research and determine how they are related and affect the study results.

2.3.1 Computing Infrastructure of Performance of SMEs

According to Puschmann and Alt (2001), the non-integrated design of many ICT technology creates several problems for organisations that need to incorporate their information systems and have their business operations totally automated. As a result, a technology that produces a scalable, operational, and sustainable embedded ICT infrastructure is required. Differentiation and, as a result, competitive advantage can be achieved with such infrastructure. The current IT infrastructure of an organisation affects the implementation of EAI, as the infrastructure's requirements also drive the adoption of system implementation.

El-Nawayi and Ismail (2006) state that the lack of an adequate and safe e-commerce-enabled environment is a deterrent to e-commerce ventures, but it is not a well-grounded reason to avoid them. As a result, good infrastructure lowers the cost of doing business, fostering competitive private sector growth. Golicic et al. (2002) note that to promote and sustain small business networking and IT, both industry and government institutions have a role to play. They discovered that the Australian government had created programs for small businesses to provide national database structures, utilizing the internet as a universal model for information that encompasses all elements of telecommunication.

In order to succeed in e-commerce adoption, an SME requires at least to have in place a proper ICT infrastructure like for instance; smartphone, laptop, personal computer or any other

technological device that can be rooted to the communication ntworks or internet. Most researches depict that formidable capacity of e-commerce globally on SMEs is conducted through websites of various organizations. Further, some other form of activities in SMEs are attained by latest ICTs for instance mobile commerce, cloud computing as well as also social network services (Constantinides, 2010; Scupola, 2010).

The lack of infrastructure is a significant due to low levels of productivity and poor performance by SMEs. Lousy infrastructure has been described as an important stumbling block to sustainable business in Kenya. Inaccessibility to property, workstation, feeder roads, power, and other services are examples of infrastructure issues. The requirement exacerbates sMEs' limited access to power that they receive permission from local authorities before a link can be made. Furthermore, Kenya's energy costs are incredibly high, hurting all enterprises, large and small. This limitation restricts SMEs' technical ability, lowering their goods' and services' competitiveness (Republic of Kenya Sessional Paper No. 2, 2005).

The study found that the perceived benefits and drawbacks of using computing infrastructure, as well as the perception of both the communication process and users' experience with using computing infrastructure, empathy, and the image of cloud computing services, all positively influence the perceived quality of computing service infrastructure in SMEs' performance. Computing infrastructure provides innovative answers to SMEs' difficulties and alters their business practices. The goal of computing infrastructure is to provide better, higher-quality service at a lesser cost, using personnel who aren't necessary IT experts. In Murang'a County SMEs, the perception of computing infrastructure is generally good, indicating a potential growth in the number of SMEs using it in the future.

2.3.2 ICT Computing Skills of Performance of SMEs

Koh and Maguire (2004) point out that technological changes and their effect on workforce numbers and skills pose a severe challenge in companies. SMEs find it hard to justify a sizeable financial investment in a region that is not considered a central component of their operations. They further note that SMEs have access to a wide variety of internet applications. However, it is unclear if they are completed using them to achieve a competitive edge. The adoption of e-business in its present configuration is impossible due to a lack of resources and expertise in both the technological and business fields.

According to Wielicki and Arendt (2010) observed in a study conducted through USA, Poland, Portugal and Spain amongst SMEs on e-commerce depicted those countries that adopted use of ICT computing skills greatly contributed to application of ICT based-knowledge on their enterprises. This had largely contributed to readiness of most e-commerce individual SMEs in their own states. In reference to the rankings of the global network readiness (GITR, 2012), found out that most developing nations including Kenya experience low network connection status readiness that has greatly challenged the urge for adoption of e-commerce in most of its SMEs. Therefore, this study evaluated the contribution of ICT computing skills on e-commerce adoption and the performance of SMEs ina more prospects of holistic nature.

Certain SME owners and managers lack the energy and inventiveness to think outside the box. In many of these cases, especially in poor nations, SME executives would do the bare minimum to keep up with technological advancements. Many people who have raised concerns over the high cost of technology for e-commerce setup haven't looked into other low-cost options, like the open-source software, SMS capabilities, and other latest forms of ICT (Scupola, 2010).

Bowles and Wilson (2002) postulate that when studying SME need for IT and e-commerce, it is critical to recognise the subject's dynamism and thus its constant shift. They further observe that institutions required to provide professional services to MSEs, on the other hand, are poor and lack the technical capacity to meet the sector's needs. Among MSE operators and technology experts, there are no knowledge networks. The general lack of investment in research and development adds to the constraints restricting the availability and accessibility of applicable technologies to SMEs.

Caldeira and Ward (2002) discovered that organizations who were successful in implementing ICT computing skills had top management eager to accept new methods to boost job output, or had collaborated with an IT firm that provided consultancy services and managed their ICT infrastructure. There is a lot of research that illustrates how important it is to have the backing of the owner and senior management for the successful adoption of ICT computer skills.

2.3.3 Information Storage of Performance of SMEs

According to Akinyede (2018), asserts that a typical e-commerce chain includes a hardware manufacturer, Internet service provider, network integration provider, software developer and service provider, all of whom serve as the company's backend and provide technical support. With the integration of infrastructure into electronic commerce, it will be easy to enhance better infrastructure in the industry. The new developments such as virtualization have created better ways to ensure that not much physical infrastructure is needed in companies. Companies are able to protect their data online and access it, even if they do not have physical systems in their physical locations. This is a better way of ensuring that resources within the company are distributed and shared efficiently.

Data, like any other commodity, can be created, stored, and sold, and it should be treated as such. It is, however, a specific type of asset that, as previously mentioned, is not depleted during the manufacturing phase. Information is a direct asset used to carry out the development process, which can be thought of as a decision-making process that generates a decision. The immateriality of knowledge is another aspect that distinguishes it from traditional properties (Szmelter, 2013).

Shuai (2011) outlines the difficulties faced by Chinese m-learning, which include limited mobile device resources, restricted storage capacity, and costly hardware and software investments. Cloud computing has the potential to remedy the problem due to its dependability and ease of customisation. All of these potential benefits, however, are described theoretically rather than experimentally.

Other studies look into e-commerce adoption in SMEs across a variety of business activities. Drew discovered that SMEs with websites for many years communicate via e-mail and use their websites for advertisement and promotion. Websites are operated by far fewer people for sales, recruiting, and procurement. According to Brown and Lockett (2004), SMEs primarily engage in basic e-commerce activities, including e-mail, web access, and websites. Just a tiny percentage of SMEs buy and sell online. According to Pool *et al*., (2011) e-commerce use among SMEs is not as widespread as among large corporations.

Juncai and Shao (June, 2011), safety is one key factor in information security crisis and privacy to various users of cloud computing in e-commerce. Most researchers argue that most providers of cloud services state that they provide more secure and reliable centre for data storage. There still exists gap to the users on where to locate their stuffs, operation mode, staff situation among other conideration. Additionally, in an environment that's multi-tenant it's a challenge for various providers of cloud computing providing a levelised more specific environments that are isolated

to single customer model. According to a study conducted by International Data Corporation (IDC) found out that users rated high challenges and issues experienced in cloud computing. Therefore, prompting concerns of security of information stored, its availability as well as performance issues in most e-business.

2.3.4 Service Delivery and of Performance of SMEs

Today, as customers are becoming increasingly reliant on the Internet, e-commerce has unquestionably become a pattern, as the number of Internet users in Kenya continues to rise. As a result, online buyers demand deliveries to be completed as promptly as feasible and at the lowest possible cost. As a result, it is critical that supply chain management be conducted effectively.

Researchers have hypothesized a new phenomenon among SMEs because of easy access and low cost of Internet technology for e-commerce due to the rapid diffusion of the Internet and other networks of communication affecting e-commerce (Bell & Loane, 2010; Standing *et al*., 2004). Nevertheless, on the ground, SMEs in both developed and growing economies have not shown much appreciation. However, SMEs in strong economies appear to perform well because of their well-equipped e-readiness climate (Wielicki & Arendt, 2010).

Frempong (2009) notes that SMEs in Ghana is actively involved with various types of business using mobile telephony in a survey of SMEs. Donner and Escobari (2010) describe how SMEs use cell phones to alter the business processes within the company and enlarge business relations outside conventional landlines. Although significant growth in e-commerce uptake via cell phones, the social media services continue in the context of many other impediments, such as trade barriers placed on poor developing countries by wealthy nations and influential multinational companies. Since SMEs are already resource-constrained, some researchers are pessimistic that they will respond to global and local e-commerce demand (Winch & Bianchi, 2006).

Web-based business transaction services such as license issuance, tax payments and procurement, can help make services more transparent, accessible, and secure (Mincomunicaciones, 2007). According to Locke (2006), when properly conceived, these e-government portals can also assist SMEs in quickly obtaining information, saving them time, contributing to their knowledge generation, and generating new business activities (i.e., profit). This can help SMEs better understand social concerns (such as regulatory and environmental issues) that can affect their operations. If these advantages are realised, organisations and citizens, in general, will be able to contribute to the long-term enhancement of their reputation and confidence in their governments.

Even though many world e-commerce service providers deliver unified payment alternatives, several African businesses are unable to use them due to an inexistent of an international bank account. For example, PayPal's advancement into Nigeria, the African country with the highest Internet penetration, make the online payment easier, a big step forward for e-commerce merchants. Still, users in Nigeria are unable to transfer money from their PayPal account local bank accounts. Working by the banking laws and relevant private-sector laws is another issue that must be tackled for the e-commerce industry to run smoothly (Ojeme and Onuba, 2010).

2.4 Summary of the Literature review and research gaps

Table 2. 1 Summary of Research gaps

Author(s)/ Year	**Objective/ strategy**	**Research Gap**	**Focus of Study**
Njau, J. N., & Karugu, W. (2014). Lip-Sam, T., & Hock-Eam, L.(2011).	Performance of SMEs	Factors leading to improved SME performance	Influence of E-Marketing on the performance of Small and Medium Enterprises in Kenya: Survey of Small and medium enterprises in the Manufacturing Industry in Kenya. *International Journal of Business & Law Research, 2*(1), 62-70.

			Estimating the determinants of B2B e-commerce adoption among small & medium enterprises. *International Journal of Business & Society*, *12*(1).
Ghobakhloo, M., Arias-Aranda, G., & Benitez-Amado, J. (2011). Awa, H. O., Ojiabo, O. U., & Emecheta, B. C. (2015).	ICT computing skills	Effects of ICT computing skills on the adoption and success of e-commerce in business.	Adoption of e-commerce applications in SMEs. *Industrial Management & Data Systems,* 111(8), 1238-1269. Integrating TAM, TPB and TOE frameworks and expanding their characteristic constructs for e-commerce adoption by SMEs. *Journal of Science & Technology Policy Management*, 6(1), 76-94.
Rahayu, R., & Day, J. (2015). Kenneth, W, Rebecca, M. N., & Eunice, A. (2012). Njau, J. N., & Karugu, W. (2014).	Computing infrastructure	Impacts of computer infrastructure on the implementation and use of e-commerce in SMEs.	Determinant factors of e-commerce adoption by SMEs in a developing country: evidence from Indonesia. *Procedia-Social and Behavioral Sciences,* 195, 142-150. Factors affecting adoption of electronic commerce among small medium enterprises in Kenya: Survey of tour and travel firms in Nairobi. *International Journal of Business, Humanities, and Technology*, 2(4), 76-91. Influence of E-Marketing on the performance of Small and Medium Enterprises in Kenya: Survey of Small and medium enterprises in the Manufacturing Industry in Kenya. *International Journal of Business & Law Research*, 2(1), 62-70.
Poorangi, et *al.* (2013). Olatokun, et *al.* (2010)	Information Storage	How the availability of information affects the adoption and success of e-commerce in SMEs.	E-commerce adoption in Malaysian Small and Medium Enterprises Practitioner Firms: A revisit on Rogers' model. *Anais da Academia Brasileira de Ciências,* 85(4), 1593-1604. E-Commerce technology adoption by SMEs in Botswana. *International Journal of Emerging Technologies & Society*, 8(1).

Poorangi, M. M., Khin, E. W., Nikoonejad, S., & Kardevani, A. (2013). Mutua, et al., (2013)	Service delvery	How availability of e-commerce services affect the success of an organization's performance.	E-commerce adoption in Malaysian Small and Medium Enterprises Practitioner Firms: A revisit on Rogers' model. *Anais da Academia Brasileira de Ciências*, 85(4), 1593-1604. The extent of e-commerce adoption among small and medium enterprises in Nairobi, Kenya. International Journal of Business and Social Science, 4(9).

Source: Author (2020)

2.5 Conceptual Framework

The study was conducted on four independent variables and one dependent variable. The first independent variable was computing infrastructure, whose attributes include the availability of computer network, internet connectivity, computer hardware, and computer software availability. The second independent variable was user skills, whose characteristics include user experience, level of training for staff, users' qualifications, and user skills. The third independent variable was E-commerce information, whose attributes include market trends, latest products, and product pricing. E-commerce Services' last independent variable with the following qualities: Communication services, Information Sharing services, data availability, data storage, and information processing.

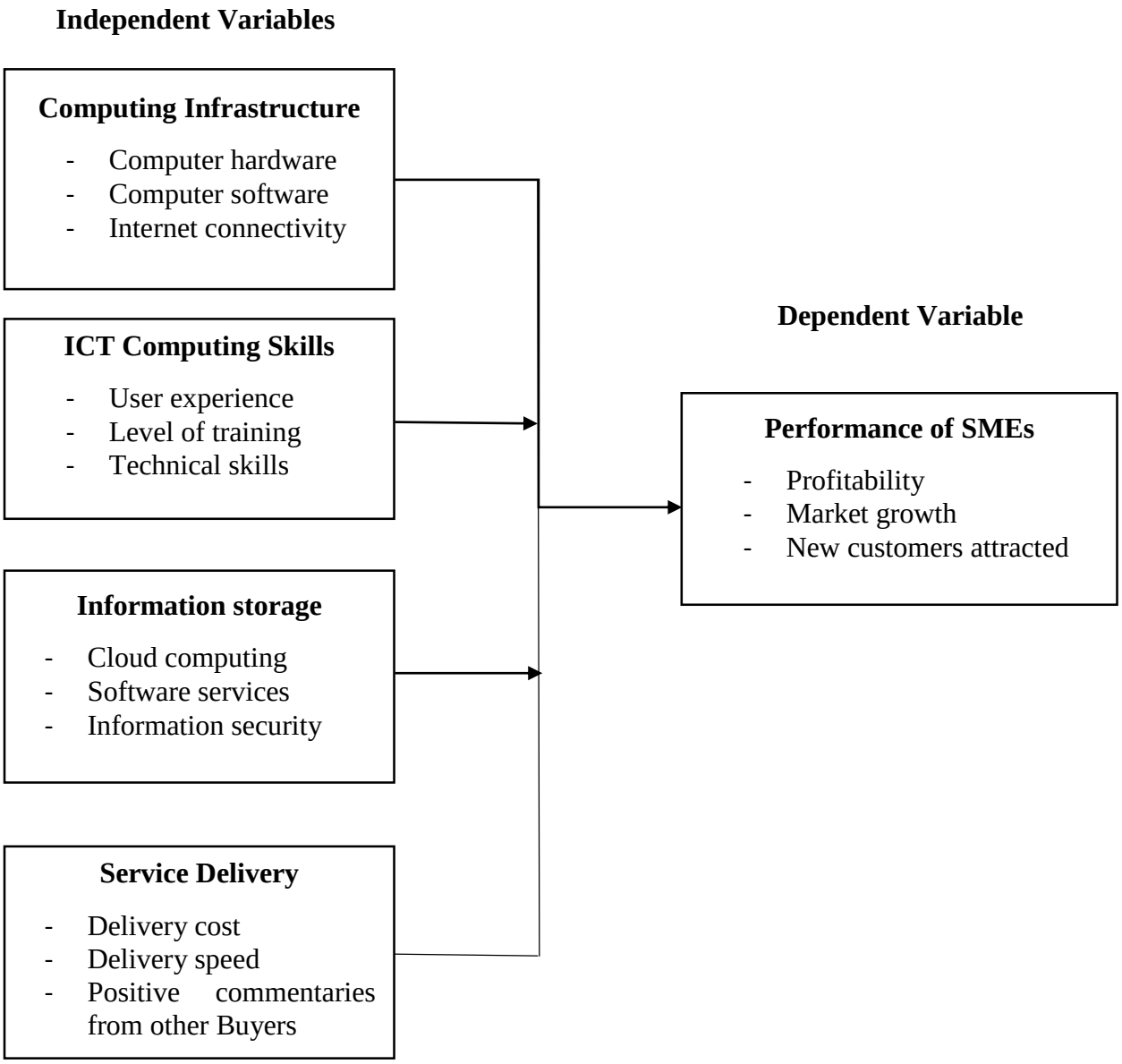

Figure 2. 1 Conceptual Framework

Source: Author, (2020)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This part of the study methodology explains and indicates the methods used in undertaking the study process. The chapter describes the research design, the population targeted for research, the design used in sampling, instruments of collecting data, pilot study, reliability and validity of the instruments used in research and the techniques used in collecting data. The chapter also describes how data was analysed and presented and the ethical considerations met by the research study.

3.2 Research Design

A descriptive cross-sectional design was applied in the research to determine how the adoption of electronic commerce in its performance of SMEs relates. According to Khan (2008), the design is relevant since it helped the researcher describe how the nature of affairs is. Here, the survey intended to collect information with a detailed account of the research objectives and questions through business managers and employees on how the four independent variables affect the dependent variable being studied. Additionally, a descriptive cross-sectional design entailed a detailed explanation and profiling of the different consumers who provide the information into different types based on the existing conditions (Kothari, 2014).

3.3 Target Population

According to Bailey (2011), target population entails a collection of individuals who share similar features that the researcher is interested in. The study targeted SMEs that included; transport services, manufacturing, retail and wholesale shops, hotel and catering services, among others operating across Murang'a County, which have valid business permits or licenses from the county government administration. According to Ndung'u (2016), there are 1,234 registered or licensed

SMEs operating in Murang'a County. Therefor, the target population included all the 1234 registered government administrations.

3.4 Sampling Design and size

A sample size of 10-30% is adequate in descriptive research (Mugenda & Mugenda, 2003). To obtain a sample size of 124 licensed business owners/managers that were relevant to the study objectives, the researcher used the sampling error formula (Creswell, 2011). The population was sampled through a stratified sampling technique in coming up with a different proportionate category of SMEs. The sample size was calculated as follows:

{0.1 x 1239}

= 124 participants

Table 3. 1 Sample size

Type of SME (Owners/Managers)	**Number**	**10% sample**
Hotels	267	27
Shops	480	48
Clinics	218	22
Hardware Shops	144	14
Transport Saccos	130	13
Total	**1239**	**124**

3.5 Data Collection Instrument

The researcher employed semi-structured survey questionnaires in collecting primary data in this study. The questions were structured in a manner that contained both the open-ended and closed questions. This allowed the respondents to provide profound answers in filling in open-ended questions, whereas any information or data missing was supplied in the closed-ended questions.

This helped investigate and draw conclusions on the research study (Mutandwa, Grala & Grebner, 2016). The respondents' opinions were ranked using a Likert Scale, which mainly included assigning a score on a scale of 1 to 5, with some brief explanations for various aspects.

3.5.1 Pilot Test

Mugenda and Mugenda (2012) defines a pilot study as a trial run that allows the researcher to gain access to the procedure, decide the study variables, and assess the accuracy of testing research instruments and analysis parameters for the proposed study before the actual study. In achieving reliability and validity, the researcher pre-tested the questionnaire on two respondents for relevance, comprehension and logic selected from different categories of the target population through a purposive sampling technique that did not comprise the actual study. The pilot study thus assisted in determining which questions to use, which to change, and which to omit or exclude.

3.5.2 Validity of the Instrument

Validity is referred to as the level to which the data collection instruments can assess the characteristics intended by the analysis (London, Matthews & Grover, 2017). The researcher used both face and construct validity to determine how well the survey will measure the results and questions. Face validity is the level to which a test is subjectively perceived to encompass the definition. In contrast, construct validity was to measure whether the operational definition of the provided variables in the research reflects the research concept's actual theoretical meaning. Content validity was employed to know the extent to which the research items fairly represent the whole domain that the survey intends to measure.

3.5.3 Reliability of the Instrument

Reliability is referred to as the degree to which an instrument of research produces identical results under the same conditions is (Noble & Smith, 2015). To ensure reliability, Cronbach’s Alpha was

used in quantifying the coefficient of internal consistency, quality and reliability of the instrument used in data collection. The study also used Cronbach's alpha procedure in checking on the inconsistent quality of results. Through Cronbach's alpha, the estimates on the average quantifiable items and their subsequent correlation were determined. SPSS was used to determine the collected data's quality. An acceptable level of 0.6 was used in Cronbach's alpha to get the desired outcome. The 0.6 alpha estimation was considered adequate to determine good results.

3.5.4 Data Collection Procedure

The researcher provided the research instrument with the help of trained research assistants that were conversant with SMEs in Murang'a County. The approach was taken to create the best possible conditions for the researcher to get the right information that would represent the situation in the field and also answer the research questions while fulfilling the objectives. This method was also relevant since it allowed the researcher to explain any misunderstanding that arose when administering the questionnaires. This gave respondents room for more answers since they had enough time to understand and comprehend the questions much better and provide relevant responses in line with the study. In the circumstances the researcher found it difficult to self-administer the questionnaire, the researcher sought to drop and collect them later after they had filled. The incomplete questionnaires were not used in the research, and therefore they were all discarded.

3.6 Data Analysis and Presentation

This entailed interpreting data collected from respondents after the questionnaires and secondary data recordings were completed and collected from each person. The results were compiled using spreadsheets and data editing, data sorting, and data coding to create relationships. To explain and summarize the results, the data was analyzed qualitatively and quantitatively. The study's data was

used to collect detailed information about the study and to create trends and relationships. The data was presented through graphs and frequency tables in the analysis.

3.6.1 Regression Model

To determine the relationship between the study variables, the following regression model was used.

$$\mathbf{Y = \beta_0 + \beta 1 X_1 + \beta 2 X_2 + \beta 3 X_3 + \beta 4 X 4 + \varepsilon_i}$$

Whereby:

Y= Performance on SMEs

$\mathbf{B_0}$ **-** intercept coefficient

$\mathbf{X_1}$ – Computing infrastructure

$\mathbf{X_2}$– ICT Computing skills

$\mathbf{X_3}$– Information Storage

$\mathbf{X_4}$– Service Delivery

$\boldsymbol{\varepsilon_i}$ – Residual term (extraneous variables)

$\boldsymbol{\beta_1}$**,** $\boldsymbol{\beta_2}$**,** $\boldsymbol{\beta_3}$ and $\boldsymbol{\beta_4}$ = regression coefficients

3.7 Ethical Considerations

The researcher observed the moral stance of all ethical considerations while conducting the research. Respondents were not forcibly coerced into offering sensitive information. Strict anonymity of respondents and their identities were not revealed by the researcher under any circumstances as guided. The researcher sought authorization from Kenyatta University, National

Commission for Science, Technology and Innovation (NACOSTI) and the County Director of Education to conduct the study. This was a way of showing respondents that they were providing data for research purposes. Thus, they were made aware of the study objectives and granted participation was on voluntarily. The researcher gave room for questions and provided them with a comprehensive explanation of how the study was conducted and the expected outcome benefits of the result it would bring to the county government, national government, and various relevant organizations.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The section describes and examines collected data, analyzed, and evaluates the impact of e-commerce adoption on SMEs in Muranga County. The data was then coded into the statistical analytical tools to ensure consistency and completeness. Finally, the results were presented in tables and figures that summarized the findings. The study's findings were founded on a broad goal that examined how businesses have implemented computing infrastructure, computer skills, information storage, and service delivery, and then anticipated how it will affect their Performance.

4.2 Response rate

The research sought to interview 102 participants to acquire data from various small and micro-enterprises. In the survey, 78 out of 102 returned questionnaires completed the questionnaires, yielding a response rate of 76.5 % (table 4.1), that's greater than the response rate criterion, indicating an excellent return rate. A response rate of 50% is suitable for analysis and reporting, a rate of 60% is good, and a rate of 70% or more is great (Mugenda & Mugenda, 2003). The high response rate was attributed to the self-administration of questionnaires with research assistants who were present at all times at the relevant SMEs in Murang'a County.

Table 4. 1 Response Rate

Questionnaires	**Frequency**	**Percentages (%)**
Returned	78	62.9
Non-returned	46	37.1
Total	**124**	**100**

4.3 Demographic Information

The study investigated demographic information from respondents, such as gender, business category, number of years in business, and business size distribution.

4.3.1 Respondents' Gender

Figure 4.1 shows most informants interviewed were male (55.2%), while the minority are females (44.8%). This indicates that most Small Medium Enterprises in Murang'a County were managed and owned by men.

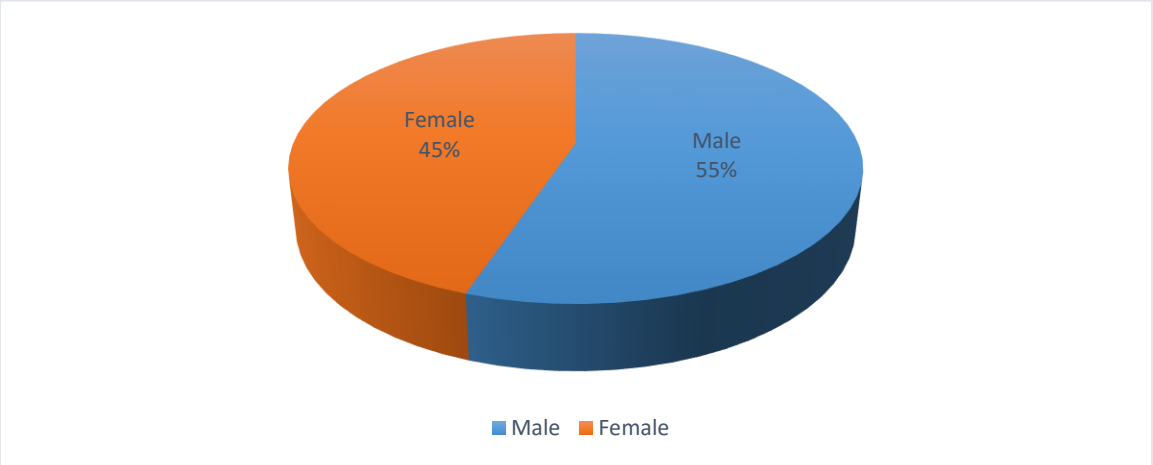

Figure 4. 1 Respondents' Gender

Source: Researcher (2021)

4.3.2 Business Category

The distribution of business categories is depicted in Figure 4.2. The majority of businesses were in the retail and wholesale sector (51.3 %, 40), followed by 23 % (18) in the hotel and catering sector, 16.7 % (13) in the transport service sector, and 9 % (7) in the light manufacturing sector, according to the survey.

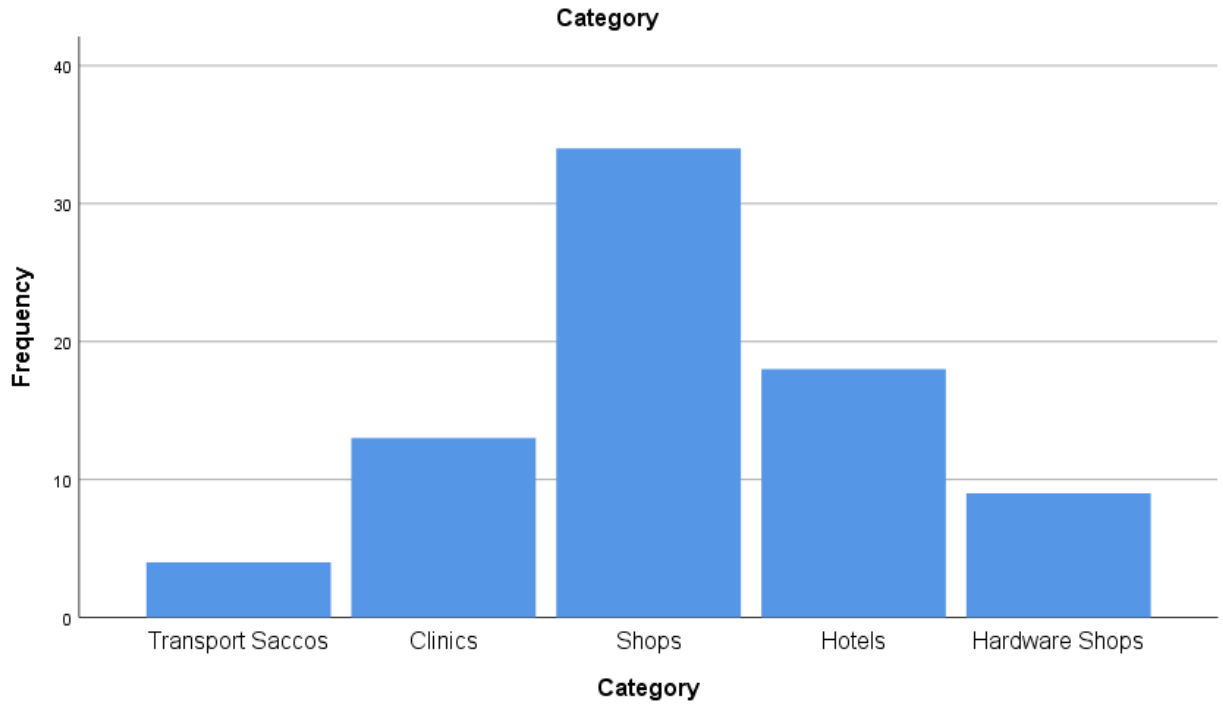

Figure 4. 2 Business Category

Source: Researcher (2021)

4.3.4 Number of Years in Operation

The findings shown in figure 4.4 indicated that 48.7% of the businesses in Murang'a county had between 10-19 employees, 23.1% had between 20-29 employees, 19.2% had less than 9 employees, and 9.9% had 30 and above employees. The number of employees in a company is crucial because it indicates the degree of growth advancement in businesses in a given industry (Diar, 2017). This is an indicator that most of the businesses in Murang'a county had been in operation for a period of 11 to 15 years.

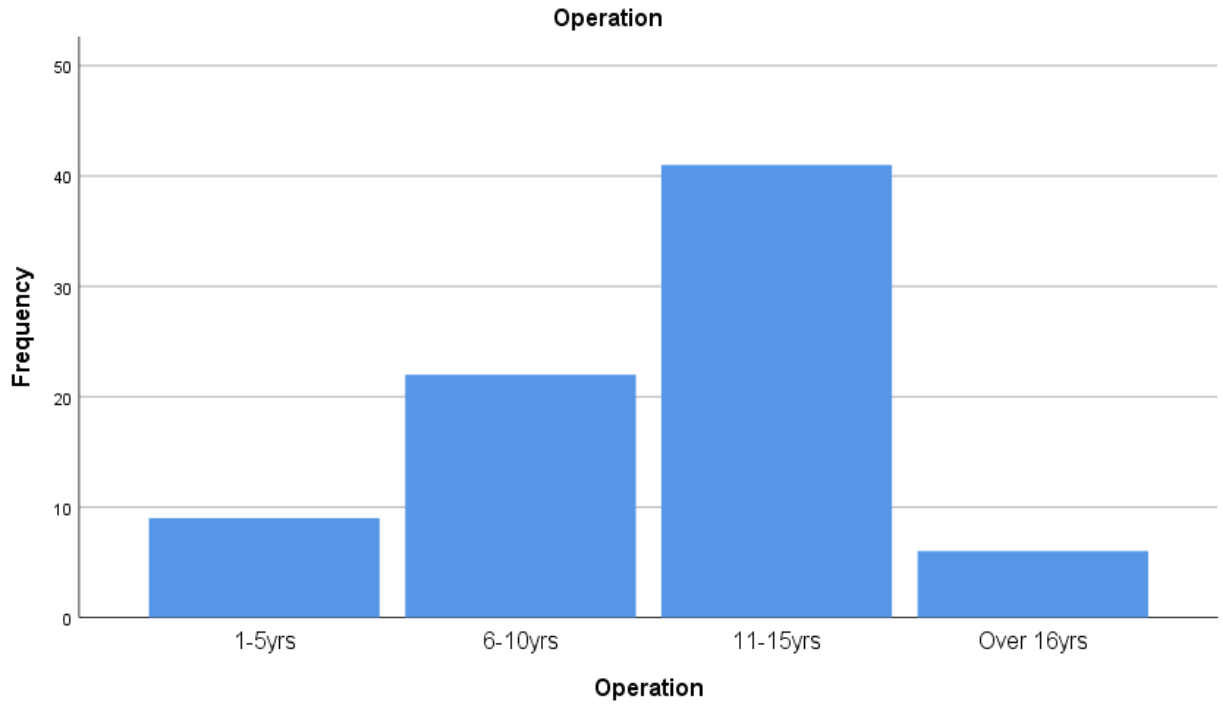

Figure 4. 3 Number of Years in Operation

Source: Researcher (2021)

4.4.4 Number of Employees

The findings shown in figure 4.4 indicated that 48.7% of the businesses in Murang'a county had between 10-19 employees, 23.1% had between 20-29 employees, 19.2% had less than 9 employees, and 9.9% had 30 and above employees. The number of employees in a company is crucial because it indicates the degree of growth advancement in businesses in a given industry (Diar, 2017).

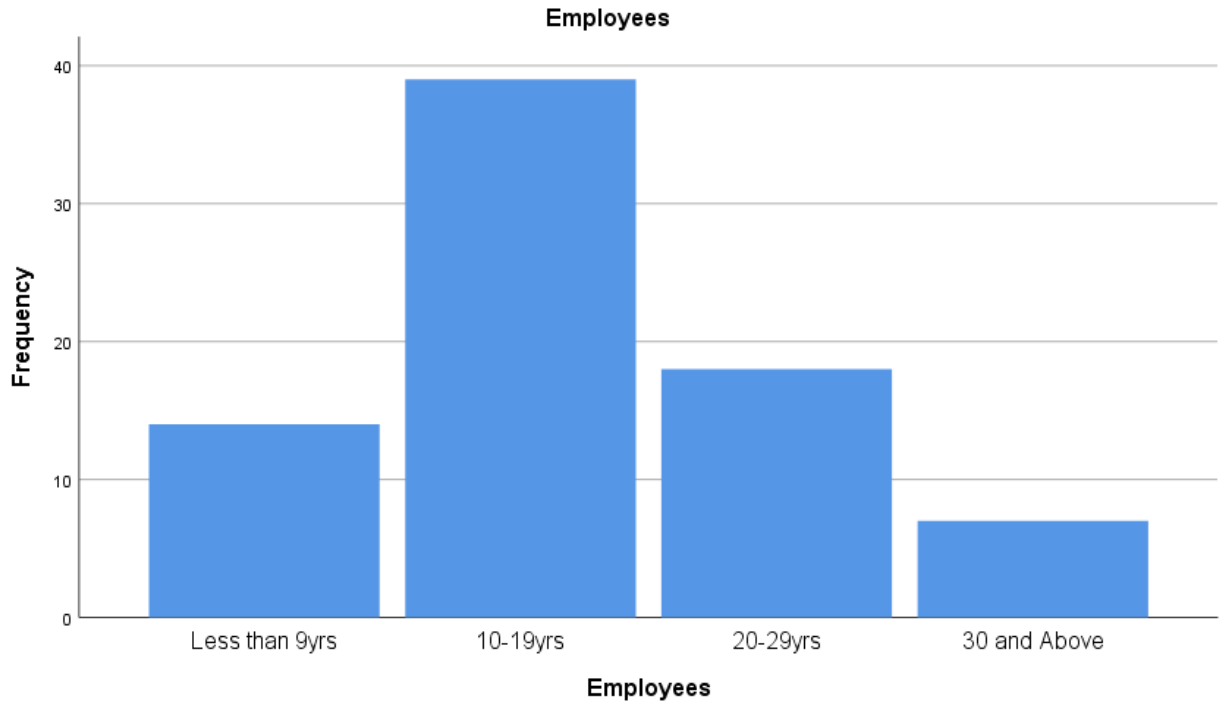

Figure 4. 4 Number of Employees

Source: Author, (2021)

4.4 Reliability Analysis

Cronbach's alpha was used to determine the convergent validity and how all five items from each variable were created while checking the reliability of the Likert scales in the study. Cronbach's alpha scores between 0 and 1.0 are considered significant. Since they suggest that the scales have an adequate level of internal consistency (Warne, 2017; Noble & Smith, 2015). Scales checked for reliability were computing infrastructure with 5 items in all variables. As shown in Table 4.2 computing infrastructure contained a value of 0.736, ICT Computing Skills had a value of 0.812, while Information Storage had a value of 0.856, whereas Services Delivery scored 0.768, while SME Performance scored 0.871. Overall, the research obtained a 0.809 score. This demonstrates that the average alpha coefficient for each individual variable was much over 0.7, confirming

Mugenda & Mugenda's (2003) conclusion that an alpha coefficient score of greater than 0.7 indicates that the instruments are extremely dependable.

Table 4. 2 Reliability Statistics

Variable	Number of Items	Cronbach Alpha	Remarks
Computing Infrastructure	5	0.736	Reliable
ICT Computing Skills	5	0.812	Reliable
Information Storage	5	0.856	Reliable
Services Delivery	5	0.768	Reliable
Performance of SMEs	5	0.871	Reliable
Overall Score		**0.809**	**Reliable**

Source: Researcher (2021)

4.5 Descriptive Analysis

The descriptive analysis of the Likerts scale statements on both the independent and dependent variables is discussed in this section. Hassan (2012) asserts that descriptive analysis comprises of measure of central tendency (arithmetic mode, mean and median), measure of dispersion, diagrams and frequency tables. The study employed descriptive analysis to look at the relationships among the study variables, as well as the relationships between them. Descriptive statistics was obtained from statements of every objective that were run through the descriptive custom table and presented on mean and standard deviations. The results of the quantitative data were presented using descriptive statistics like Standard Deviation (SD) and Mean (M), which were created using SPSS. These results were reported in the following parts:

4.5.1 Computing Infrastructure

The objective of this study was to see how computing infrastructures influenced e-commerce adoption and Performance in small businesses. Table 4.3 contains the descriptive statistics.

Table 4. 3 Descriptive Statistics of Computing Infrastructure

Statements	SA %	A %	N %	D %	SD %	Mean	Std. Deviation
Availability of standard operating systems and software packages on e-commerce	43.5	47.1	8.2	1.2	0.0	4.59	0.41
Business focus on infrastructural quality as a powerful strategic weapon	50.6	42.4	5.9	1.2	0.0	4.05	0.95
Availability of computer hardware that are flexible enough to accommodate all customer demands.	36.5	34.1	11.8	4.7	12.9	4.28	0.72
Availability of a technical team that has the knowledge to install and troubleshoot systems whenever you have issues.	30.6	31.8	15.3	7.1	15.3	4.75	0.25
Availability of quality internet connection	68.2	12.9	0.0	18.8	0.0	3.58	1.42
Average Mean Score	**45.9**	**33.7**	**8.2**	**6.6**	**5.6**	**4.25**	**0.75**

Source: Researcher (2021)

The respondents strongly agreed that computing infrastructures influence the adoption of e-commerce and its success on SMEs, as demonstrated by an aggregate of 4.25 and a standard deviation of 0.75 in Table 4.3. This is supported by Wamuyu (2017) findings that investigated the utilization of cloud service providers in micro and small businesses and found high connections between SMEs' tasks and cloud computing services and between SMEs' information processing needs and cloud computing services information-processing competencies. In addition, the findings agree with Jabbouria and Zaharib's (2015) study that examined the effect of IT

infrastructure on organizational Performance via the role of core competencies: an empirical study in Iraqi banks and found that the Iraqi banks cannot determine their fortunes to improve Performance.

The respondents strongly agreed that the availability of a technical team that has the knowledge to install and troubleshoot systems whenever you have issues (M=4.75, SD=0.25) and the availability of standard operating systems and software packages on e-commerce (M=4.59, SD=0.41). This is in line with the conclusions of a study conducted by Javaid (2014), which examined the use of cloud computing by SMEs and revealed that cloud computing service providers handle licenses, IT support, and expensive equipment. They also make sure that their computers systems have the most recent software versions installed. The findings align with Zanfei and Seri (2016) study that examined the role of ICT, skills, and organizational change in public sector performance and established a significant influence between skills and organizational change.

The respondents agreed on the statements that availability of systems that are flexible enough to accommodate all customer demands (M=4.28, SD=0.72), business focus on infrastructural quality as a potent competitive asset (M=4.05, SD=0.95), and that availability of quality internet connection (M=3.58, SD=1.42). This conforms with the results of Otieno's (2015) study, which looked at issues surrounding ICT usage and adoption while small and medium-sized businesses: the specific instance of Nairobi-based SMEs and found that user satisfaction of use of ICT applications and systems, and also the owner and integrated drive, enhanced the technology adoption by SMEs. The findings also conform to an empirical analysis done by Mithas, S., Ramasubbu, Krishnan, and Sambamurthy (2015) that examined information technology infrastructure capability and firm performance and revealed that the mediated effects model is has

more validity than a model that posits direct impacts of IT infrastructure capabilities on firm Performance.

Additionally, the respondents were given a rating measure to indicated the extent to which they agree with the statement. A Likert-scale measure of 5 points was used in the process for the participants to indicate. Through the analysis, it was found that 43.5% strongly agreed that the availability of standard operating systems and software packages on e-commerce has enhanced by computing infrastructure. As well, 47.1% agreed with the statement, 8.2 were uncertain since they remain neutral, while 1.2% disagreed. Conversely, computing infrastructure has influenced the focus on infrastructural quality as a powerful strategic weapon of the business, as indicated with 50.6% of the members whom strongly agreed. Also, 42.4% agreed with the statement, 5.9% remained uncertain, and 1.2% disagreed. The integration of the computing infrastructure has enhanced the availability of computer hardware that are flexible enough to accommodate all customer demands. The majority of the participants strongly agreed 36.5%, 34.1% agreed, 11.8% were neutral, and 4.7% disagreed. Through computing infrastructure, there has been an availability of a technical team that has the knowledge to install and troubleshoot systems whenever you have issues. This was strongly agreed with 30.6% of the respondents, 31.8% agreed, 15.3% were uncertain, 7.1% disagreed, and 15.3% strongly disagreed. Availability of quality internet connection has experienced through computing infrastructure. This was supported with 68.2% members who strongly agreed, 12.9% agreed, while 18.8% disagreed.

4.5.2 ICT Computing Skills

The study sought to investigate how ICT computing skills influenced e-commerce adoptions in various SMEs and how it has affected their Performance. The study findings are shown in Table 4.4.

Table 4. 4 Descriptive Statistics of ICT Computing Skills

Statements	SA %	A %	N %	D %	SD %	Mean	Std. Deviation
Availability of standard operating systems and software packages on e-commerce	56.5	18.8	0.0	18.8	5.9	4.52	0.48
Business focus on infrastructural quality as a powerful strategic weapon	29.4	49.4	1.2	20.0	0.0	4.63	0.37
Availability of computer hardware that are flexible enough to accommodate all customer demands.	60.0	18.8	0.0	8.2	12.9	3.87	1.13
Availability of a technical team that has the knowledge to install and troubleshoot systems whenever you have issues.	55.3	42.4	0.0	2.4	0.0	3.43	1.57
Availability of quality internet connection	63.5	27.1	0.0	4.7	4.7	4.44	0.56
Average Mean Score	**52.9**	**31.3**	**0.2**	**10.8**	**4.7**	**4.51**	**0.49**

Source: Researcher (2021)

The respondents strongly agreed that ICT computing skills encouraged the adoption of e-commerce and its Performance on SMEs, as shown by an aggregate of 4.51 and a standard deviation of 0.49 in Table 4.4. This is supported by the findings of Jevtic, Dedjanski, Beslac, Grozdanic, and Papic (2013), who explored the influence of skilled labour in applying ICT on business performance and found that implementation of ICT was carried out by workers who had the right skills which influenced Performance of the firm positively.

The interviewees highly agreed (M=4.63, SD=0.57) that they had experience working with e-commerce platforms and conducted reviewed training on the use of systems in my firm (M=4.52, SD=0.48). This is in agreement with the findings of Her, Ahmad, and Hee (2020) study that

examined organizational capability on ICT support skills and SMEs' performances in Malaysia and found that information and technology skills and IT knowledge will lead the SMEs to perform well during the digital economy era. In addition, the findings also agree with Jalagat and Al-Habsi (2017) study that evaluated the impacts of IT usage on organizational Performance and found that IT usage significantly correlates to organizational Performance.

According to the respondents (M=4.44, SD=0.56), staff training was carried out to enlighten personnel on emerging technologies and have enough technical skills to handle business operations through computers (M=3.87, SD=1.13). This is supported by the findings of Lehner's (2018) study, which examined the relationship between ICT competencies and skills for SMEs and revealed that IT system skills, abilities, and knowledge had become a vital asset and success element for SMEs. The findings are also supported by Marler, Liang, and Dulebohn (2019) study that examined the relationship between training and effective employee information technology use and indicated that employees' beliefs about resources to support the use of new software mediated the relationship between technology training and intention to use new software outside of formal training and before mandated use.

Further, employee training increases job satisfaction and morale to a moderate amount, according to the respondents (M=3.43, SD=1.57). This contradicts the findings of Otaghsara and Mohseni (2012). They investigated the role of ICT in the in-service training of government employees and found that using ICT in training workers led to higher employee satisfaction, increased levels of skills and knowledge, and improved the overall and usefulness of the training process. The study also agrees with Pettenati, Giuli, and Khaled (2018) study examined information technology and staff development: Issues and problems related to new skills and competence acquisition.

According to the findings of the study, 56.5 percent of respondents strongly agreed that the availability of standard operating systems and software packages on e-commerce has been improved by ICT Computing Skills. In addition, 18.8 percent agreed, 18.8 percent opposed, and 5.9 percent strongly disagreed with the statement. In contrast, ICT Computing Skills has influenced the focus on infrastructure quality as a potent strategic weapon of company, as shown by 29.4 percent of members who strongly agreed. In addition, 49.4 percent agreed with the statement, 1.2 percent were unsure, and 20.0 percent disagreed.

The incorporation of ICT Computing Skills has increased the availability of computer hardware that is adaptable enough to meet all consumer expectations. The majority of participants (60.0 percent) strongly agreed, 18.8 percent agreed, and 2.4 percent disagreed. There is now a technical staff available through ICT Computing Skills that has the competence to setup and debug systems anytime you have problems. 55.3 percent of respondents strongly agreed, 42.4 percent agreed, and 2.4 percent disagreed. Through computing infrastructure, the availability of high-quality internet connections has increased. This was backed by 63.5 percent of members who strongly agreed, 27.1 percent of members who agreed, 4.7 percent who disagreed, and 4.7 percent who strongly disagreed.

4.5.3 Information Storage

The study's goal was to see how the availability of information storage influenced e-commerce adoption and Performance in SMEs. Table 4.5 contains the descriptive statistics.

Table 4. 5 Descriptive Statistics on Information Storage

Statements	SA %	A %	N %	D %	SD %	Mean	Std. Deviation
Availability of standard operating systems and software packages on e-commerce	41.2	34.1	12.9	8.2	3.5	4.08	0.92

Business focus on infrastructural quality as a powerful strategic weapon	35.3	49.4	4.7	4.7	5.9	4.05	0.95
Availability of computer hardware that are flexible enough to accommodate all customer demands.	38.8	55.3	3.5	2.4	0.0	4.30	0.70
Availability of a technical team that has the knowledge to install and troubleshoot systems whenever you have issues.	36.5	49.4	11.8	2.4	0.0	4.12	0.88
Availability of quality internet connection	45.9	44.7	0.0	5.9	3.5	4.55	0.45
Average Mean Score	**39.6**	**46.9**	**6.2**	**4.9**	**1.9**	**4.15**	**0.85**

Source: Researcher (2021)

According to Table 4.5, survey participants agreed that information storage effects e-commerce adoption and Performance of SMEs, as shown by an aggregate of 4.15 and a standard deviation of 0.85. Further, this was supported with 41.2% who strongly agreed. As well, 34.1% agreed with this statement, 12.9% remained neutral, 8.2% disagreed, and 3.5% strongly disagreed. This result is consistent with Oro and Jaoko's (2016) study, which investigated the impact of storage systems on Organizational Performance: A Study of Kisumu City's Holdings and found that supermarket holdings had adopted several storage systems that contributed positively to their Performance. The findings also are consistent with Oro and Jaoko (2017) study that investigated the effect of storage systems on organizational Performance: the study of holdings within Kisumu City and concluded by establishing the data; establishing and identifying different storage systems courses that the firms should offer and adopt for their organizations in different operations to enable them to meet set goals and objectives.

The respondents strongly agreed (35.3%) upon the accessibility of digital privatized configured networks so that personnel operating in different geographic areas could get secure and dependable

access to the database. With the mean and the standard deviation of (M=4.55, SD=0.45), 49.4% respondents agreed with the statement, 4.7% were uncertain, 4.7% disagreed and 5.9% strongly disagreed. This is in agreement with Grober and Baumol (2017). In a growing digital world, businesses employ virtual teams to maintain a competitive advantage in terms of new technical prospects, staff retention, and cost-effectiveness, according to a study that looked into virtual teaming in the perspective of cultural and technological transformation. The findings al

Most respondents agreed (55.3%) on the statements that the information was available about e-commerce services with the mean and the standard deviation of (M=4.30, SD=0.70). Additionally, there is sufficient information online about product pricing (M=4.12, SD=0.88), provision of access to the latest market trends (M=4.08, SD=0.92), and they provide online access to knowledge about the most recent new items (M=4.05, SD=0.95). This contrasts with Caroline, Mugun, and Loice's (2015) study, which studied the relationship between knowledge storage, retrieval, and job performance and discovered that there is one. The findings also contrast with Mukangu and Ndungu (2016) study that explored the role of computer-based information systems on Organizational Performance: A Case of Kenya Airways Company and found a significant relationship between computer-based information systems and organizational Performance.

4.5.4 Service Delivery

This study aimed to see how service delivery availability affects e-commerce adoption and Performance in SMEs. Table 4.6 contains descriptive data that show the various findings on service delivery regarding SMEs.

Table 4. 6 Descriptive Statistics on Services Delivery

Statements	SA %	A %	N %	D %	SD %	Mean	Std. Deviation
Availability of standard operating systems and software packages on e-commerce	34.1	61.2	0.0	0.0	4.7	4.50	0.50
Business focus on infrastructural quality as a powerful strategic weapon	45.9	35.3	2.4	2.2	14.1	3.23	1.77
Availability of computer hardware that are flexible enough to accommodate all customer demands.	38.8	28.2	1.2	9.4	22.4	3.94	1.06
Availability of a technical team that has the knowledge to install and troubleshoot systems whenever you have issues.	55.3	29.4	0.0	4.7	10.6	4.84	0.16
Availability of quality internet connection	30.6	55.3	3.5	2.4	8.2	4.04	0.96
Average Mean Score	**38.8**	**43.5**	**1.4**	**4.5**	**11.8**	**4.11**	**0.89**

Source: Researcher (2021)

The interviewees strongly agreed (61.2%) that the availability of service delivery effects the adoption of e-commerce and its Performance on SMEs, as evidenced by an aggregate of 4.11 and a standard deviation of 0.89 in Table 4.6. This is corroborated by Fazlzadeh, Faryabi, Darabi, and Zahedi's (2012) findings, which investigated the impact of service delivery structures on company performance and found that service delivery systems had a considerable impact on customer loyalty and satisfaction.

Further, most respondents strongly agreed (55.3%) on the statements that it is efficient of booking and paying the purchase (M=4.84, SD=0.16) and that the business has access to communication services (M=4.50, SD=0.50). This is in line with the findings of Musheke and Phiri's (2021) study,

which examined the impact of effective communication on organizational Performance using the systems approach and found that effective communication has a beneficial impact.

The implementation of e-commerce services impacts the overall perception of the firm and consumer happiness, according to respondents (M=4.04, SD=0.96) and that there is enough database to support e-commerce services (M=3.94, SD=1.06). This is inconsistent with the findings of Jahanshahi, Rezaei, Nawaser, Ranjbar, and Pitamber's (2012) study, which looked at the impact of electronic commerce on organizational Performance and discovered meaningful links among electronic commerce applications as well as operational and market-based Performance.

The assertion that there is good advertisement through social media was answered to a modest degree by the respondents (M=3.23, SD=1.77), as the majority 45.9% strongly agreed. This contradicts the findings of a Camil (2017) study that looked into the efficacy of social media marketing in small business performance and found that Facebook allows businesses to discover what the public wants, with the majority of participants strongly agreeing that Facebook has helped to raise product awareness of the product and services.

4.5.5 Performance of SMEs

The study's goal was to see how much e-commerce adaption had affected the Performance of small and medium businesses in Murang'a County. Table 4.7 contains the descriptive statistics.

Table 4. 7 Descriptive Statistics on Performance of SME

Statements	SA %	A %	N %	D %	SD %	Mean	Std. Deviation
Availability of standard operating systems and software packages on e-commerce	51.8	42.4	0.0	3.5	2.4	4.42	0.58
Business focus on infrastructural quality as a powerful strategic weapon	58.8	17.6	2.4	17.6	3.6	4.07	0.93
Availability of computer hardware that are flexible enough to accommodate all customer demands.	57.6	24.7	9.4	0.0	8.2	4.30	0.70
Availability of a technical team that has the knowledge to install and troubleshoot systems whenever you have issues.	45.9	37.6	5.9	9.4	1.2	4.31	0.69
Availability of quality internet connection	55.3	30.6	4.4	4.6	3.9	4.56	0.44
Average Mean Score	**54.1**	**28.9**	**4.2**	**7.4**	**3.1**	**4.33**	**0.67**

Source: Researcher (2021)

As evidenced by the aggregate of 4.33 and standard deviation 0.67 in Table 4.7, the respondents (28.9%) agreed that e-commerce adaption had a significant impact on the Performance of SMEs in Murang'a County. This supports Alderete's (2019) findings that electronic commerce contributes to SME performance in manufacturing enterprises and that electronic commerce uptake has a favorable and significant impact on SME revenues, which is bolstered by ICT usage levels.

The respondents strongly agreed (51.8%) that e-commerce has improved transaction speed and operational efficiency, new product and service development (M=4.56, SD=0.44). This is in agreement with a study by Sedighi, Sirang, and Azerbaijan (2018), which found that using e-commerce is considerably efficacious on Performance of SMEs and also that e-commerce usage

is markedly beneficial on performance indicators including financial results, internal business process, economic expansion, learning and customers.

Further, respondents agreed (42.4%) on the statements that e-commerce is the main reason behind business growth and increased profits (M=4.42, SD=0.58), e-commerce has demonstrated assistance to the generation of business through social marketing (M=4.31, SD=0.69), e-commerce has contributed to better customer service (M=4.30, SD=0.70) and that e-commerce is the sole reason behind our increased customer base (M=4.07, SD=0.93). The findings are also in accordance with Mahliza's (2019) study, which looked at the impact of e-commerce adoption via media platforms on microbusiness performance. Microbusinesses that use e-commerce via social networking sites report increased earnings, increased product profit margins, and expanded marketing opportunities.

4.6 Inferential Analysis

Correlation analysis and regression analysis were among the inferential statistics used. These are discussed in the following order:

4.6.1 Correlation Analysis

The objective of this study was to identify the degree and extent of correlation analysis in order to determine the types of linkages among SMEs' Performance and ICT computing infrastructure (ICI), computing skills (CS), information storage (IS), and service delivery availability (SD). According to Field (2017), correlational analysis depicts the direction and magnitude of relationships between variables. Table 4.10 shows the correlation outcomes of CI, CS. EI, ES, and P-SMEs.

Table 4. 8 Correlation Outcomes

		Computing Infrastructure (CI)	ICT Computing Skills (CS)	Information Storage (IS)	Services Delivery (SD)	Performance of SMEs (P-SMEs)
Computing Infrastructure (CI)	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	78				
ICT Computing Skills (CS)	Pearson Correlation	.109	1			
	Sig. (2-tailed)	.341				
	N	78	78			
Information Storage (IS)	Pearson Correlation	.080	.711**	1		
	Sig. (2-tailed)	.485	.000			
	N	78	78	78		
Services Delivery (SD)	Pearson Correlation	.223*	.492**	.303**		
	Sig. (2-tailed)	.048	.000	.007		
	N	78	78	78		
Performance of SMEs (P-SMEs)	Pearson Correlation	.741**	.853**	.406**	.436**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	78	78	78	78	78

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

The results in Table 4.8 show that Computing Infrastructure (CI) had a strong relationship with the Performance of SMEs with a Pearson's r-value of 0.741. This is supported by the findings of Wamuyu (2017) investigated the utilization of cloud computing services in micro and small businesses and found high connections among SMEs' tasks and cloud computing services and between SMEs' information processing demands cloud computing services' information processing capacities.

The Pearson's r for the correlation among ICT computing skills as well as SMEs' performance variables is 0.853, with a significant value of 0.00, which is less than 0.05. This demonstrates a strong link, implying that ICT computing skills are substantially linked to SME performance. This is in agreement with the findings of Her, Ahmad, and Hee (2020) study that examined organizational capability on ICT support skills and SMEs' performances in Malaysia and found that information and technology skills and IT knowledge will lead the SMEs to perform well during the digital economy era.

Information storage had a weak relationship with the Performance of SMEs with a Pearson's r-value of 0.406 with a significance value of 0.00. This is in conversely to Grober and Baumol's (2017) study that investigated virtual team cohesion in the context of cultural and technological evolution and found that organizations use virtual teams to stay competitive in an increasingly digital environment in terms of new technological capabilities, employee satisfaction, and cost effectiveness.

Services delivery was also found to have the SMEs performance to a lesser level with a Pearson's r-value of 0.436 with a significance value of 0.00. This is in disagreement with the findings of Fazlzadeh, Faryabi, Darabi, and Zahedi (2012), who conducted a survey on the impact of service delivery systems on corporate Performance and found that service delivery systems have a considerable impact on service quality and customer satisfaction.

4.6.2 Regression Analysis Results

Regression analysis was used to assess the influence of one variable on the other in the study inferential statistics aimed at establishing how the adoption of e-commerce affects the Performance of small and medium firms. Table 4.9 summarizes the findings.

Table 4. 9 Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.846[a]	.646	.639	.65486

a. Predictors: (Constant), E-commerce Services (ES), Computing Infrastructure (CI), Computing Skills (CS), E-commerce Information (EI)

b. Dependent Variable: Performance of SMEs (P-SMEs)

Table 4.9 revealed that the value of R square was 0.646 suggesting that there exists a strong relationship between the independent variables (computing infrastructure, ICT computing skills, and information storage and services delivery) and the dependent variable (Performance of SMEs). In addition, Table 4.9 showed that the adjusted R square was 0.639; this indicates that 63.9% of all the variations in Performance of SMEs is explained by computing infrastructure, ICT computing skills, information storage, and services delivery. In comparison, the remaining 36.1% of the variations are explained by factors other than those included in the model.

The analysis of variance results is as shown in Table 4.10.

Table 4. 10 Variance Analysis Results

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	1.598	4	.399	1.176	.000[b]
	Residual	24.800	73	.340		
	Total	**26.398**	**77**			

a. Dependent Variable: Performance of SMEs (P-SMEs)

b. Predictors: (Constant), Computing Infrastructure (CI), ICT Computing Skills (CS), Information Storage (IS), Service Delivery(SD)

The strategic responses had an F = 1.176> F crucial (0.399) in Table 4.10, showing that the model was appropriate in forecasting the SMEs performance. Table 4.11 also displays a P-value of 0.000 lower than the significance level of 0.05, indicating that the whole model was meaningful in predicting the association among computer infrastructure, ICT computing skills, information storage and service delivery, and SMEs' Performance.

Table 4. 11 Regression Coefficients of the Predicting Variables

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	0.539	.490		6.610	.000
	Computing Infrastructure (CI)	0.729	.046	0.066	2.781	.001
	ICT Computing Skills (CS)	0.539	.125	0.145	3.313	.000
	Information Storage (IS)	0.712	.073	0.093	1.532	.001
	Service Delivery (SD)	0.539	.490	0.712	6.610	.000

a. Dependent Variable: Performance of SMEs (P-SMEs)

The findings in Table 4.11 reveals that the constant value at 0.539 represents the value at which Performance of SMEs changes when computing infrastructure, ICT computing skills, information storage and services delivery are kept at constant.

The following was the proposed regression equation;

$$Performance\ of\ SMEs = 0.539 + 0.066\ (Computing\ Infrastructure) + 0.145\ (ICT\ Computing\ Skills) + 0.093\ (Information\ Storage) + 0.712\ (Service\ Delivery)$$

The effect of one variable to the other is described as follows:

The study found that a 0.066 represented the amount by which Performance on SMEs changes when computing infrastructure is changed by one unit keeping ICT computing skills, information storage, and service delivery constant. The t-value ($t= 2.781$, $p < 0.05$) of the study revealed that computer infrastructure had a favorable and significant impact on the Performance of SMEs. This is in line with the conclusions of a study conducted by Javaid (2014), which examined the use of cloud computing by SMEs and discovered that cloud computing service providers handle IT support, expensive equipment and licenses. They also make certain that their computers have the most recent software versions loaded.

Further, the study found that a 0.145 represented how Performance on SMEs changes when ICT computing skills are changed by one unit keeping computing infrastructure, ICT computing skills, information storage, and service delivery constant. According to the t-value ($t= 2.980$, $p < 0.05$), ICT computing abilities had a positive and substantial influence on the Performance of SMEs in Kenya. This is corroborated by the findings of Lehner's (2018) study, which looked at the relationship between ICT skills and capabilities for SMEs and discovered that IT system knowledge, abilities, and skills have proven to be a vital asset and success element for SMEs.

The study found that 0.093 represented how Performance on SMEs changes when information storage is changed by one unit keeping computing infrastructure, ICT computing skills and service delivery constant. According to the t-value ($t= 3.313$, $p < 0.05$), information storage exhibited a positive and substantial effect on the Performance of SMEs in Kenya. This contrasts to Caroline,

Mugun, and Loice's (2015) study, which looked at the relationship amongst knowledge storage, retrieval, and employee commitment and concluded that there is one.

According to the study, 0.712 represents how SMEs' performance changes when information storage is changed by one unit keeping computing infrastructure, ICT computing skills, and information storage constant as revealed by the t-value ($t= 1.532$, $p < 0.05$), service delivery had a positive and substantial influence on the Performance of SMEs in Kenya. This is inconsistent with the findings of Jahanshahi, Rezaei, Nawaser, Ranjbar, and Pitamber's (2012) study, which examined the impact of electronic commerce on organizational Performance and found an essential connection with both electronic commerce applications as well as operational and market-based Performance.

CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This section reviews the research findings, study conclusions on the research objectives, and the numerous recommendations for future research areas.

5.2 Summary

Several research studies have used the TOE or DOI frameworks to analyze the impact of organizational, environmental, and technical variables on e-commerce adoption. On the other hand, most of the research focuses on industrialized nations or has consistently reported contradictory results, as described in Chapter 1. Furthermore, while these studies show that organizational culture, environmental, and technical factors have varying degrees of impact on e-commerce adoption, few studies have attempted to demonstrate the effects of these factors in the real-world setting. As a result, this study aimed to investigate the influence of e-commerce adoption and Performance in SMEs in Murang'a County, Kenya.

The research employed 102 questionnaires, most of which were completed completely and handed back to the researcher for analysis. The study focused on Murang'a SMEs that had valid business permits or licenses from the county government. However, the respondents handed in only 78 questionnaires, corresponding to a 76.5% response rate. Male respondents made up 55%, with female responders making 45%. This signified a fair distribution of gender in the targeted population. The study revealed that most of the nature of SMEs was retail and wholesale and hotel and catering business.

The study's overarching goal was to investigate the effects of e-commerce adaption on the Performance of SMEs in Murang'a County. Specifically, the study determined the effect of

Computing Infrastructure, ICT computing skills, information storage, and services delivery on the Performance of SMEs. The following section is a summary of the important findings:

The research aimed to investigate how computing infrastructures influenced the adoption of e-commerce and its Performance on SMEs. It found that computing infrastructure had a positive impact on SMEs' Performance, as evidenced by t-value ($t= 2.781$, $p < 0.05$). Availability of a technical team that has the knowledge to install and troubleshoot systems whenever you have issues, availability of standard operating systems and software packages on e-commerce, and availability of flexible enough to accommodate all customer demands.

The study investigated how ICT computing skills influenced the adoption of e-commerce and its Performance on SMEs and established that ICT computing skills had a positive and significant influence on the Performance of SMEs, Kenya, as indicated by t-value ($t= 2.980$, $p < 0.05$). The respondents had experience with e-commerce platforms. In addition, staff training was carried out to enlighten employees on the evolving technology. As a result, they had enough technical skills to handle business operations through computers.

The research aimed at examining how information storage availability influenced the acceptance of e and its Performance on SMEs in Murang'a and found that information storage had a significant positive impact on the Performance of SMEs in Murang'a, as evidenced by the t-value ($t= 3.313$, $p < 0.05$). Virtual private network configurations allow employees working in different geographic areas to have safe and dependable access to shared resources. In addition, the information was available about e-commerce services, and there is sufficient information online about product pricing and that provision of access to the latest market trends.

The research also aimed at examining how the availability of service delivery influenced the adoption of e-commerce and its Performance on SMEs in Muranga and found that service delivery

had a positive and highly significant influence on the Performance of SMEs in Muranga, as illustrated by the t-value ($t= 1.532$, $p < 0.05$). It is efficient for booking and paying for the purchase. The business has access to communication services. The emergence of e-services has influenced the company's overall perception and customer satisfaction.

5.3 Conclusion

The study concludes that having good techniques in place for managing the IT infrastructure allows for enhanced Performance, increased availability, and quick resolutions to various issues that may develop. A well-managed computer infrastructure improves the Performance of technological systems, boosts uptime, and improves the user experience. Assures that the organization's systems will continue to perform at peak levels for a more extended time than a system and allows employees to work at peak efficiency.

The study concluded that hiring employees with good ICT skills is paramount to ensuring that the firm operates efficiently. The workers who can use ICT systems effectively will have an easy time dispatching their duties, also helping them add more skills in the process of learning. Employees are capable of implementing and utilizing technology that will assist them in attracting clients. Employees are more prepared to use computer systems and deal with problems as a result of this training.

The study concludes that having efficient and reliable storage systems enables employees to search for documents in various ways and find them within the shortest time possible. Well-organized information storage and retrieval system improve the working environment within the organization. When storing information electronically, records are kept securely and can be accessed from any location. Cloud and online storage of information enable companies to have efficient and automatic backups that ensure their data is safe and accessible at any time.

The study concludes that properly defined services enable customers to understand service offers, such as what each service includes and does not include, eligibility, service restrictions, cost, how to request services, and how to receive help. A well-defined service also outlines the internal processes that are required to provide and support the service

5.4 Recommendations for Study

SMEs should take some e-commerce training programs, particularly on website design, to understand the value of implementing e-commerce and efficiently use all tools to give their businesses a competitive edge. To benefit from electronic commerce, small and medium enterprises should invest in more effective hardware, which will make their operations more efficient. Small and medium enterprises should invest in high-speed internet connectivity and better software to enhance speedy communications and operations in their respective businesses. SMEs should boost their computing infrastructure and build capacity for computing skills because they are statistically significant predictors, contributing significantly to their Performance in competitive markets.

Further, the study recommends that allowing businesses to expand, developing appropriate capacity-building programs for the managers and owners and workers, and enhancing ICT infrastructure must all be prioritized. At the same time, environmental factors must also be considered. Recommended the effect of no rating on computer elements on SMEs' computer adoption. To compete effectively and ensure timely communications and up-to-date trends, SMEs should always strive to get important e-commerce information such as market trends, the latest products and pricing, making the businesses competitive and effective in their operations.

5.5 Suggestions for Further Study

The research generally aimed at determining the effects of e-commerce adaptation and Performance of SMEs in Murang'a County. E-commerce adaptation was evaluated in computing Infrastructure, ICT computing skills, information storage, and services delivery. As a result, the study directs that additional research be conducted concentrating on other factors that have not been investigated that influence the Performance of SMEs in Murang'a County. Further, other studies can be carried out that focus on the Performance of SMEs in other counties. Future research can also perform multiple studies over a more extended period to explore how e-commerce adoption will offer long-term strategic benefits to SMEs, such as before and after the economic downturn. Additionally, future research may build on this by performing comparable studies among SMEs in different parts of Kenya or even in another nation to investigate how e-commerce adoption affects SMEs' Performance and how entrepreneurial orientation affects the strength of that link.

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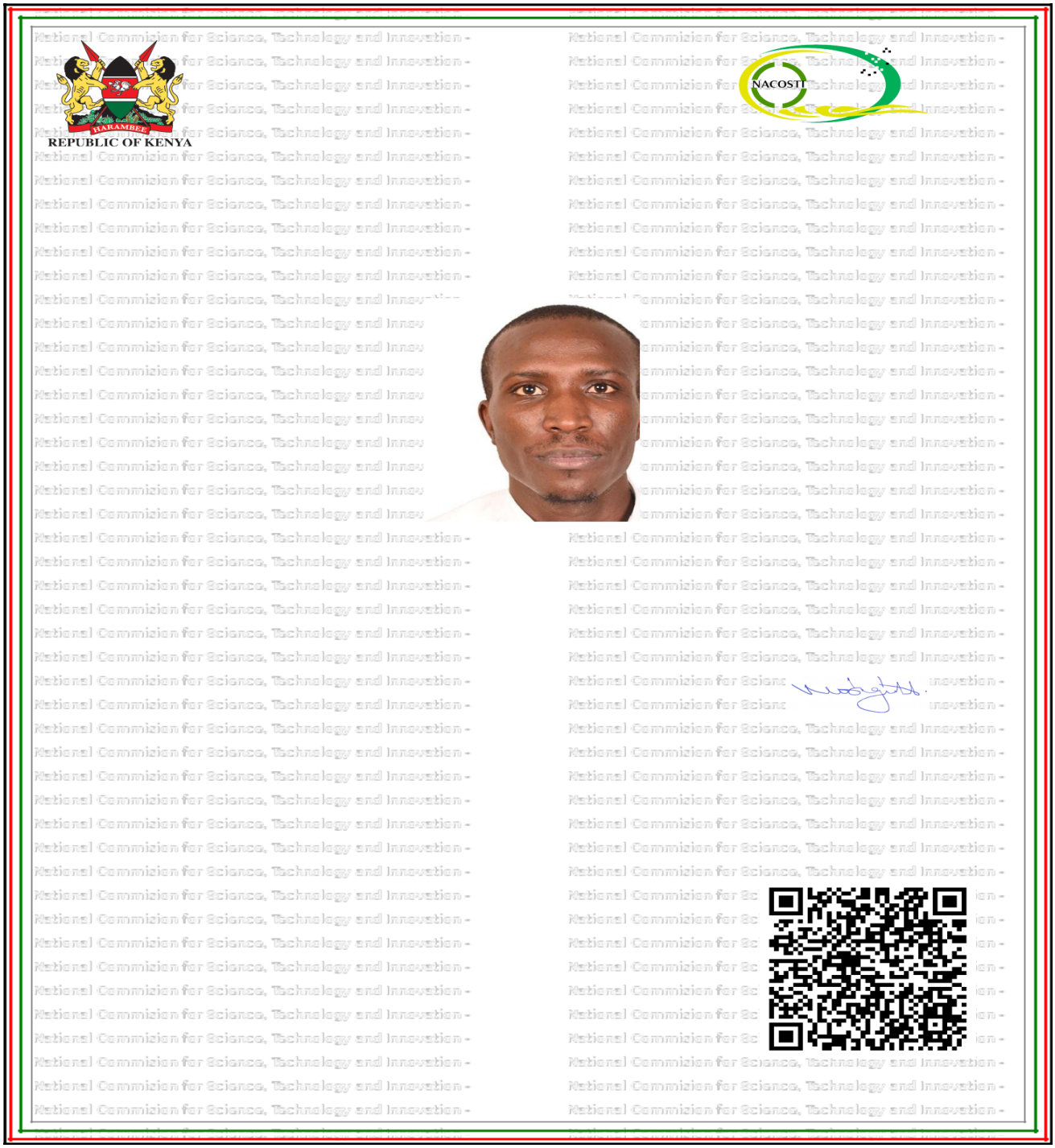
APPENDICES

Appendix I: Copy of Research Permit



Appendix II: Cover letter to Interviewees

Date……

TO WHOM IT MAY CONCERN.

Dear Sir/ Madam,

REQUEST: REQUEST FOR COLLECTION DATA

My name is **EDWIN MBEGERA ORORI**, a student at Kenyatta University pursuing a Masters of Business Administration (Management Information Systems) in the school of Business Administration. I am currently undertaking a research project titled **"ELECTRONIC COMMERCE ADOPTION AND PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES IN MURANG'A COUNTY, KENYA"**.

I am conducting this research as part of the criteria for obtaining the degree. You've been chosen to participate in this research, and I'd like to ask you to help with data collection by answering the questions in the attached questionnaire. The details you provide will be used solely for academic purposes and will be held in strict confidence. You are welcome to request a soft copy of this questionnaire, which will be emailed to you.

Your cooperation and assistance will be greatly appreciated.

Yours faithfully,

.....

EDWIN ORORI

Appendix III: Questionnaire

This questionnaire is intended to collect data to assess e-commerce adoption and factors for the performance of the selected small and medium enterprises in the County of Murang'a. Therefore you have been requested to part in helping us with the relevant information. Your privacy is protected, and the information you provide will only be used for research purposes and will not be shared with anyone. Kindly answer the questions as requested

SECTION A: DEMOGRAPHIC INFORMATION

1. Gender: Male ☐ Female ☐
2. Select category of the business

   Transport Service ☐ Light Manufacturing ☐ Retail and Wholesale ☐
3. The number of years you have been in operation?

   1 – 5 Years ☐ 5 - 10 Years ☐ 10 -15 Years ☐ Over 15 Years ☐
4. What is the number of employees?

   Less than 9 employees ☐

   Between 10 -19 employees ☐

   Between 20-29 employees ☐

   Above 30 employees ☐

SECTION B: COMPUTING INFRASTRUCTURE

5. Please tick the most appropriate answer to reflect your situation

	Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
Factors Under Consideration	**1**	**2**	**3**	**4**	**5**
Availability of standard operating systems and software packages on e-commerce					
Business focus on infrastructural quality as a powerful strategic weapon					
Availability of systems that are flexible enough to accommodate all customer demands.					
Availability of a technical team that has the knowledge to install and troubleshoot systems whenever you have issues.					
Availability of quality internet connection					

SECTION C: ICT COMPUTING SKILLS

6. Mark corresponding figures showing the rate to which you agree/disagree with these statements.

		Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
		1	2	3	4	5
1.	Conducting reviewed training on the use of systems in my firm.					
2.	Have experience with the use of e-commerce platforms.					

3.	Have enough technical skills to handle business operations through computers.					
4.	Have basic computer packages knowledge.					
5.	Staff training is carried out to enlighten employees on the evolving technology					

SECTION D: AVAILABILITY OF INFORMATION STORAGE

7. Tick on the corresponding figures showing the rate to which you agree/disagree.

		Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
		1	2	4	4	5
1.	Provision of access to the latest market trends.					
2.	Have access to information about the latest new products online.					
3.	The information was available about e-commerce services.					
4.	There is sufficient information online about product pricing					
5.	Availability of virtual private set up networks, so staff working at different geographic locations can have secure and reliable access to shared resources					

SECTION E: AVAILABILITY OF SERVICE DELIVERY

8. Tick on the corresponding figures showing the rate to which you agree/disagree.

		Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
		1	2	3	4	5
1.	The business has access to communication services.					
2.	There is good advertisement through social media.					

3.	There is enough database to support e-commerce services.					
4.	It is efficient of booking and paying the purchase					
5.	Adoption of e-commerce service affected the overall perception of the business and customer satisfaction					

SECTION F: PERFORMANCE OF SMEs

9. Please tick on an option you feel is the most appropriate answer according to your situation.

		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	Performance	**1**	**2**	**3**	**4**	**5**
1.	E-commerce is the main reason behind business growth and increased profits					
2.	E-commerce is the sole reason behind our increased customer base.					
3.	E-commerce has contributed to better customer service					
4.	E-commerce has demonstrated assistance to a generation of business through social marketing					
5.	E-commerce has contributed to operational efficiency in the speed of transaction, new product and service development.					

Thank You for Your Participation