INFLUENCE OF INNOVATION ON THE GROWTH OF EXPORT BUSINESS AMONG HORTICULTURAL FIRMS IN KENYA

BY

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DECLARATION

Student's Declaration

I declare that this dissertation my original work and has not been submitted for any award of degree in any other University. No part of this dissertation can be reproduced without my permission or that of Strathmore University.

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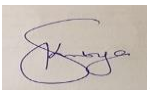
Signature …  ……. Date 31st May 2024

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ABSTRACT

The purpose of this study was to examine the influence of innovations on the growth of export business among horticultural firms in Kenya. The study focused specifically on product innovations, market innovations, supply-chain innovations and financial innovations and their influence on growth of export business among horticultural firms in Kenya. In addition, the study was guided by the Diffusion of Innovation Theory and New Growth Theory. The research adopted the positivism research philosophy and employed descriptive cross-sectional research designs in data collection and analysis. The target population comprised of 658 registered horticultural firms in Kenya. The study used purposive/judgmental sampling technique and the Yamene (1967) formula to obtain a sample size of 249 managers. Primary data was then be collected using structured questionnaires which consisted of closed-ended questions. After data was collected through the questionnaires, the data was edited, categorized and coded in MS Excel. It was then be input into the Statistical Package of Social Sciences (SPSS) v27 which assisted in generating the descriptive and inferential statistics. The descriptive statistics that were generated included mean, standard deviation and percentages while the inferential statistics comprised of correlation analysis and multiple regression analysis. The results of the study revealed that majority of the respondents agreed product innovations, market innovations, supply-chain innovations and financial innovations are key innovations that have been employed in horticultural firms in Kenya to a good extent. The findings also indicated that product, market, supply-chain and financial innovations had a positive and significant relationship with growth of export business in horticultural firms in Kenya. Additionally, the study also established that product innovations had the most positive and significant influence on growth of export business, followed by financial innovations, market innovations and lastly supply-chain innovations. The study also recommended that the management of horticultural firms should invest in research and development (R&D) to continuously improve the quality, variety, and uniqueness of horticultural products and enhancing post-harvest handling to extend shelf life. Policymakers should also implement policies that foster partnerships between government agencies and private sector stakeholders to create financing programs that support innovation in the horticultural export industry. On the other hand, the study was also restricted to using one quantitative research instrument that is the structured questionnaire and had a limited time and budget scope.

DEDICATION

This Thesis is dedicated to my children Mevyne and Angela, I love you and hope to inspire you.

ACKNOWLEDGEMENT

I wish to thank my research thesis supervisor, Dr. Stella Nyongesa for her supervision during this study. This thesis could not have succeeded were it not the effort she made to guide me through the entire process.

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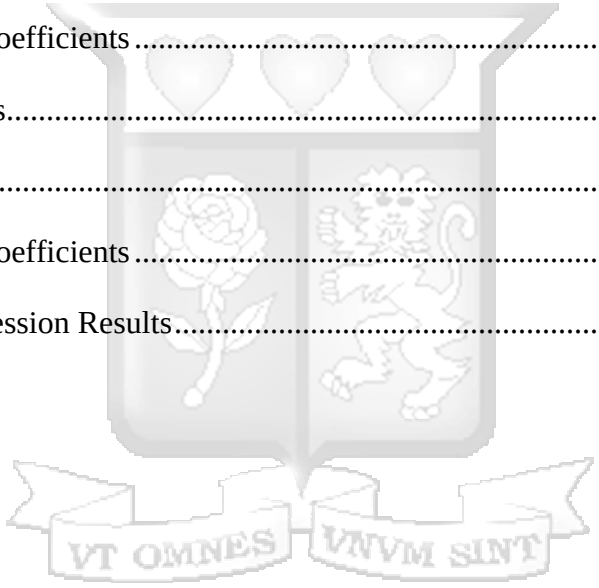

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LIST OF ACRONYMS AND ABBREVIATIONS

AFA	Agriculture and Food Authority
ARDL	Auto-Regressive Distribution Lag
ATM	Automated Teller Machine
EPZ	Export Processing Zones
GDP	Gross Domestic Product
GSCM	Green Supply Chain Management
HCDA	Horticultural Crops Directorate Authority
PLS-SEM	Partial Least Squares Structural Equation Modeling
SME	Small and Medium Enterprises
SPSS	Statistical Packing for Social Sciences
WTO	World Trade Organization
HACCP	Hazard Analysis Critical Control Point
ISO	International Organization for Standardization
GAP	Good Agricultural Practices

DEFINITION OF TERMS

Innovation: is the development of a unique and new method of carrying out tasks that leads to advancements or the creation of new goods or services (Aggarwal, 2022).

Growth: refers to the expansion of a business with regard to increase in volume of outputs, profits, market shares, customer base and market access (Sunde, 2017).

Export: refers to the process of selling goods and services that are produced in one country to buyers in another country (Sunde, 2017).

Horticultural firms: are companies that major their farming and production in garden crops such as flowers, vegetables, fruits and ornamental plants (Irandu, 2019).

Product Innovations: refers to the use of new technologies to create new products or improve their existing nature through adding new features, repackaging etc (Kahn, 2018).

Market Innovations: refers to the application of new marketing strategies that involves substantial adjustments to product design, packaging, promotion and pricing (Aksoy, 2017).

Supply-chain Innovations: involves the use of new technologies in organizing the movement of goods between the producers and consumers until they are placed on retail stores (Moran, 2018).

Financial Innovations: financial innovation is the process of developing new financial products, services or procedures to provide better financial solutions (Effiom & Edet (2022)

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The liberalization of international trade by the World Trade Organization (WTO) through implementing of the multilateral trade systems, has significantly led to the growth of world trade (Fitzgerald et al., 2020). According to a report by the WTO (2018), the average growth of global trade has been increasing by 1.5 times more than the global GDP in each year while the total exports had grown by 250 times in 2019 (Ciuriak, 2019). The global export of agricultural products have also been significantly growing on an average of 6% annually and this has been attributed to the successful negotiations on tariffs-free trade and the non-agricultural tariffs, development of new crop varieties and packaging technologies (Fitzgerald et al., 2020).

The global market dynamics of the horticultural sector and consumer preferences are also continually evolving, demanding innovative approaches from horticultural firms to remain competitive (Tiwari & Nigam, 2019). These innovations have the potential to improve product quality, extend shelf life, reduce production costs, and enhance market access, thus influencing the export performance of horticultural firms. Horticultural products are also often referred to as high-value agricultural products that result in higher and less variable foreign earnings in many developing countries around the world (Grant et al., 2021).

In Latin America a recent survey by Grant et al., (2020) noted that exports of horticultural products increased by 3 times more than the other agricultural products in the past 20 years. This resulted in horticulture being the most important product category in total agri-food exports in the country. On the other hand, Germany is among the European countries that are able to produce a variety of summer fruits such as apples, berries and vegetables, but for off-seasonal, exotic and tropical products, it relies heavily on external suppliers (Vukajlović, van Veghel & Đurović, 2017). The consumers in these export markets increasingly prioritize attributes such as freshness, safety, sustainability, and traceability. Thus, horticultural firms in these countries have to a good extent invested post-harvest technologies like controlled atmosphere storage, cold chain facilities across the value chain, so as to meet these requirements and differentiate their products in the global marketplace.

Horticultural exports among the Sub-Saharan African countries have played a significant role in the growth of GDP, food security and poverty eradication (Fukase & Martin, 2018). There has also been significant development and expansion of horticultural firms across the region, driven by various factors including favorable agro-climatic conditions, increasing demand in international markets, supportive policies, and investments in infrastructure and technology. The expansion of cultivation areas and diversification of crops in the horticultural sector in South Africa helped the country meet the demand of the growing population in South Africa and ensure food security in future (Gonyora, Migiro, Ngwenya & Mashau, 2021).

Moreover, there has been a growing emphasis on quality and standards compliance in horticultural production of major African exporters including Zimbabwe, Zambia, Morocco, Ethiopia, Kenya and Tanzania, driven by the requirements of export markets. These horticultural firms have increasingly adopted Good Agricultural Practices (GAP), GlobalGAP certification and other quality assurance schemes to ensure product safety, traceability, and compliance with international standards. This has enabled them to access premium markets and command higher prices for their products (Boso, Adeola, Danso & Assadinia, 2019). According to Maleto (2016), Europe is Kenya's main export market for horticulture products accounting to over 85% of Kenya's exports of fresh fruits, vegetables, and cut flowers going to the European market. Exports to regional markets such as Somalia accounted for 63% followed by Uganda at 10%, Tanzania at 8% and South Africa at 5%.

Furthermore, large-scale horticultural production in Kenya has expanded to new areas, often facilitated by investments in irrigation systems and agro-inputs among smallholder farmers in the subsector (Mungai, 2017). The growth of the horticultural sector has contributed significantly to food security, employment creation and poverty alleviation and in return improved most of the livelihoods of horticultural farmers across the country. The sector led by the Oserian Development Company contributes 36% to the Kenya’s GDP and has provided employment to over 350,000 Kenyans (Muthoka, 2020). Nevertheless, Amare, Mariara, Oostendorp and Pradhan (2019) highlighted that these horticultural exporters still face stiff competition from other major exporters such as Latin America and Asia. Hence, innovative practices maybe needed to differentiate

products, improve market access, and meet the evolving preferences of consumers in target markets.

1.1.1 Innovation

Innovation is the practical application of concepts that lead to the creation of new goods and services or improvements in the way that goods or services are offered (Kahn, 2018). Sing and Aggarwal (2022) also defined innovation as the act of improving or completely transforming a process, product or service by use of new method, developing cutting-edge procedures and implementing unique ideas to produce new value. According to Edwards-Schachter (2018), innovation is not a one-time process that leads to achievement of set objectives but it involves multiple processes that are employed by businesses in an effort to advance, compete and standout in their industry or the entire marketplace.

In every business, innovation is a key factor that propels it to achieve sustainable competitiveness against their rivals in the industry (Chen, Yin & Mei, 2018). Application of various innovation strategies by different organizations has heavily relied on the use of technology to transform their processes, goods and services. Kahn (2018) characterizes innovation as an outcome, a mindset and a process emphasizing on the need for internal adoption of innovation strategies including product innovation, process innovation, marketing innovation, business model innovation, supply chain innovation, and organizational innovation by individuals within the organization, embedding innovation deeply and fostering a supportive organizational culture that nurtures its growth.

On the other hand, Bebenek (2017) study disclosed that the inclusion of innovative strategies into both the manufacturing process and products is imperative for companies to ensure that each product or service introduced to the market stands out. The study also highlights that European companies prioritize investment in innovation initiatives as a means to attract investor confidence, thereby increasing the likelihood of receiving enhanced support and funding. It also defines process innovation as the introduction of new or improved techniques of producing and delivering products in an organization. It comprises of enhancing existing software, hardware, or processes or implementing new ones, so as to increase the effectiveness and efficiency of the overall production process. Olimov (2021) also reveals that organizations use process innovations to increase their productivity while optimally lowering their production costs and improve quality of

their products. By prioritizing on the use of technology especially by using automated equipment which help to lower time used and produce more products within a short timeframe.

Moreover, Ramadani et al (2019) highlights that sustainable product innovation emerges as a pivotal concern for agri-food firms seeking to maintain and enhance their competitiveness. Likewise Amao (2020) study noted that product innovation aims to drive business growth, maintain market relevance, and satisfy customer demands by introducing innovative solutions that differentiate a company's offerings from competitors. In addition, Aksoy (2017) indicates that product innovation involves developing and introducing new or improved products to the market which offer unique features, functionalities, or benefits compared to existing offerings. When an organization successfully differentiate their products to meet customer demands, they benefit from increased competitive advantage and ultimately boost their brand recognition (Bigliardi & Galanakis, 2020).

Furthermore, Kaluyu and Muriuki (2021) also discusses on technology innovation inclusion in marketing and supply-chain among fresh produce export industry in Kenya. The study highlights on the importance of new strategies, approaches, or business models to address changing market dynamics, customer preferences, and competitive landscapes. This involve the introduction of novel distribution channels, pricing models, marketing campaigns, or partnerships to differentiate offerings and capture new market segments. It requires a deep understanding of market trends, consumer behavior, and competitive forces, along with a willingness to adapt and experiment to stay ahead in the marketplace.

Additionally, Ayoub and Abdallah (2019) also outlines on the significance of supply chain automation involving synchronizing all operations and centralizing them in one location to ensure full process visibility and management. Consequently, Effiom and Edet (2022) noted that adoption to financial innovations have been attributed to the increased developments in financial instruments, markets, digital technology and payment systems that have transformed how individuals make payments, invest, save and even borrow money. This surge of technology has given the financial services sector an efficient view, making it safe and accessible. Therefore, to investigate on innovations that influence growth of export business in horticultural firms, this study used product innovations, market innovations, supply-chain innovations and financial innovations.

1.1.2 Growth of Export Business

Export growth refers to the increase in the value or volume of goods and services that a country sells to other countries over a specific period. It is a measure of the expansion or improvement in a nation's export activities, indicating the growth of its international trade (Assadinia et al., 2019). Businesses of all sizes are able to take advantage of enormous growth and expansion prospects in the export market. Providing goods or services to foreign customers exposes a company or business to a bigger pool of possible clientele, which can enhance sales and profitability (Waithera, 2019). In addition, exports help businesses use their resources more efficiently, achieve greater economies of scale, diversify their product lines, and balance out economic cycles. When a company's output is high, it chooses to enter the export market since it enables it to profit from the investment made in new markets (Sunde, 2017).

According to Bakari (2017) research, growth of a business can be measured in terms of increase in volume of outputs, profits, market shares, customer base and market access. Total volume of outputs refers to the total finished goods produced and services provided by a firm at a given price and in a specific time period. Profit growth indicates the enhancement of financial performance over time, typically measured by the increase in net income or profit margins, reflecting the efficiency and effectiveness of the business operations. Market share expansion denotes the proportion of total sales or revenue captured by a company within its target market, indicating its competitive position and ability to gain market traction. Whereas, customer base growth signifies the enlargement of the customer pool or clientele, highlighting the effectiveness of marketing and customer acquisition strategies in attracting and retaining customers.

Knight, Moen and Madsen (2020) also revealed that growth measures provide a comprehensive assessment of business growth across key performance dimensions, reflecting the company's overall success and trajectory in the marketplace. Additionally, a widely used innovation theory that is Diffusion of innovation theory by Everett Rogers highlights the role of innovation in driving business growth. It mentions some of the measures of innovation-led growth such as investments in research and development, introduction of new products or services, adoption rates of technological advancements, and patents or intellectual property filings (Xia, Wu & Zhang, 2022).

Consequently, Tan, Su, Mahoney and Kor (2020) also examines the patterns and determinants of firm growth, highlighting factors such as firm age, size, industry characteristics, and managerial strategies that influence growth trajectories. Firm size can impact growth dynamics, with smaller firms having the agility to innovate and adapt quickly, while larger firms may face challenges related to organizational complexity and inertia. Understanding these patterns and determinants is essential for firms and policymakers alike, as it enables informed decision-making, strategic planning, and resource allocation to foster sustainable growth and competitive advantage in dynamic market environments.

Furthermore, Shimizu (2022) study which examined export growth measures in the horticultural sectors in Peru, focused on key indicators such as export volume, market share and destination markets. The study revealed that the sector recorded increased export volume, market share and market access which was attributed to diversification of high-value crops like fruits and specialty vegetables and innovative marketing strategies. Romyen, Liu and Sriboonchitta (2019) study also investigated the determinants of export growth in the Thai horticultural sector, analyzing measures such as export volume, value-added products, and market competitiveness. The study highlighted the importance of value-added products such as processed fruits and vegetables in driving export growth and enhancing market competitiveness.

In Kenya, Irandu (2019) revealed that the horticultural sector has experienced significant export growth in recent years, driven by favorable climatic conditions, investments in infrastructure and government support initiatives. Market diversification efforts have also expanded Kenya's export reach to European, Asian, and North American markets, contributing to the sector's resilience and competitiveness. Additionally, the HCDA report (2022) noted that knowledge-intensive services such as innovative communication technology, product development and financial services are efficient and cost-effective and can promote productivity, export growth, sustainable development and increase resilience against future shocks. Similarly, this study aimed to measure the growth of export business among horticultural firms in Kenya using total export volumes, market access and product development.

1.1.3 Horticultural Firms in Kenya

The horticultural sector in Kenya is dominated by the growing and selling of fruits, vegetables and flowers both for local consumption and exports. The Horticultural Crops Directorate Authority (HCDA) is the regulatory authority in charge of the regulations, promotion and development of the horticultural sector, as provided for under the Agriculture and Food Authority (AFA) Act 13 and Crops Act 16 of 2013. According to InfoTrade Kenya report (2020) on registered horticultural exporters, there are a total of 658 registered horticultural firms in Kenya. The recent report by the Director of Horticulture (2021) revealed that the horticultural sector in Kenya contributes Kshs 145 billion to the national economy. This was an increase of 6.4% from Kshs136.7 billion earned in 2018. The growth of exports of variety of flowers in Kenya to European countries was at 95% in 2020. This made it to be ranked as the largest supplier of cut flowers to the European Union and the second largest developing-country exporter of flowers in the world after Colombia (Export Processing Zones Authority, 2017).

In addition, the growth of export of fruits and vegetables was at 4% since the largest percentage 96% was being locally consumed (Irandu, 2019). The most commonly exported fruits included; pineapples, mangos, avocados and bananas. the European Union still accounts for the largest portion of Kenyan horticultural exports, taking in 45% of the exports majorly comprising French beans, snow peas, and Asian vegetables. The other leading export destinations for Kenyan horticultural products are United Kingdom, Netherlands, France, UAE, and Saudi Arabia.

The two primary channels of horticultural marketing are the wholesale chain and supermarket chain. The wholesale chain connects small scale and medium scale producers to the international market through a number of contracts and agreements with producers, agencies, freight brokers, and exporters. Whereas, supermarket chain entails the use of the same company for production, exportation and cargo handling (Siringi, 2021). Large-scale producers in the supermarket chain such as Del Monte, AAA Growers, Longonot Horticulture and Finlay's Horticulture invest more in advanced technology so as to maintain high levels of production and quality as stipulated by the laws governing food safety. Therefore, it has been observed that majority of the exports are made through supermarket chains, this is especially in the case of fruits, vegetables and cut flowers.

However, export business under the wholesale chain has been deteriorating over time (Mukundi, 2019).

According to Samoei and Kipchoge (2021), exports of horticultural products have been consistent and the sector performed fairly well even during the Covid-19 pandemic. However, most of the farmers and exporters did not realize the kind of profits they expected due to a huge proportion of their earnings paid for air freights. Other challenges that farmers and exporters continued to experience included; high production costs due to high taxes and high cost of utilities, reduced market demand due to lock downs especially in European Union and the United Kingdom and strict market requirements (Irandu, 2019).

At the local level, seasonal flooding is a key challenge that prevents access between farms and collecting centers during the wet seasons. This limits transit options due to the high accident risks on muddy and slippery roads and causes a delay in product delivery. Climatic hazards such as prolonged drought and infestation of pests and crop diseases such as; Armillaria root rot, bacterial spot, bacteria fruit blotch and lethal yellow lowers the crop yields and reduces their quality (Moya, Parker & Sakrabani, 2019). On the other hand, the quality of highly perishable products decreased as a result of an ineffective marketing system that is improperly organized and managed, and inadequate refrigeration facilities. Whereas, Tonui (2017) revealed that price fluctuations due to overproduction of horticultural crops resulted to marginal profits.

The competitiveness of the horticultural sector in Kenya has also decreased due to reduction of the role of exporters in supporting production by small-scale farmers, scarcity of departments for implementing strategies, the threat of new competitors in the market, market dominance by established horticultural firms and introduction of unique products by competitors (Peter et al., 2018). Such challenge poses a risk to growth of export business in horticultural firms in Kenya, and hence the need to identify innovative strategies that will act as a driver to the business performance of exports from these firms. Therefore, this study sought to establish the innovative strategies that when implemented can promote growth of the export business.

1.2 Statement of the Problem

The horticultural sector has become one of the subsectors in the Kenyan agricultural ministry that is growing faster and has contributed to the economic growth and development of Kenya at large.

The recommendable growth has been spearheaded by an increase in the adoption of new technologies in growing and exporting of horticultural products, which has promoted various innovation practices for the horticultural sector (Waithera, 2019). However, the horticultural sector is still affected by various factors including stringent production standards and trade regimes, climate change and variable weather, sluggish recovery in Europe, inefficiencies in supply chain (AFA, 2019). As a result, this has caused stiff competition in accessing the international market, especially during the covid-19 pandemic where many exporters were affected by strict market requirements due to lockdowns in European countries (Muthoka, 2020).

Kenya's horticultural exports heavily rely on air transportation due to perishable nature. However, horticultural exporters poor road networks and limited cold chain facilities and the expense associated with airfreight and high cost of utilities significantly impacts profitability for exporters. Thus, identifying cost-effective and efficient transportation solutions remains a priority (Onsomu, Munga & Nyabaro, 2021). On the other hand, insufficient irrigation infrastructure also restricts reliable water supply, particularly in arid and semi-arid regions, affecting crop productivity and sustainability (Ouko et al., 2020). Moreover, government levies, taxes, and utility costs contribute to the overall high cost of operating in the sector. These financial burdens affect profit margins and hinder investment in research, technology, and innovation by horticultural farmers (Siringi, 2021).

Studies on the influence of innovation on the growth of export business among horticultural firms in Kenya are still not adequate. Some of the studies in this area include; Briones Penalver et al. (2018) study on influence of corporate social responsibility on innovation and performance of agribusinesses in Spain. In this study, innovation is used as a mediating variable rather than the main independent variable in the study. The use of the study area of agribusinesses was too diverse, covering the different agricultural businesses without a focus on horticultural firms. Toomsalu et al. (2019) study also examined the determinants of innovation in small and medium enterprises (SMEs) in Europe. However, However, this contextual scope of this study was diverse as SMEs employ different kinds of innovations based on the type of business, again these determinants were examined against business performance rather than growth. Thus, these two studies reveal that their a knowledge gap on studies assessing the influence of innovation on business growth.

The study by Rambe and Khaola (2022) investigated on the impact of innovation on agribusiness competitiveness in South Africa and Zimbabwe. However, the discussion of this study which was between two countries failed to provide a comparative analysis between competitiveness of small-scale agribusinesses in South Africa and Zimbabwe which obviously vary. Moreover, competitiveness is just one component of growth of agribusinesses hence the other components have not been discussed in this study. Another study by Mkuna (2022) assessed the determinants of horticultural export and welfare impact of small-scale farmers in Arusha Tanzania. The study outlined the socio-economic, production and institutional factors that determine the total volume of common beans exported, yet common beans are not examples of horticultural exports. In addition, the study also did not discuss on the aspect of growth of horticultural exports and innovation.

Further, Mukundi (2019) study examined on technological innovation and competitiveness of agribusiness firms in Kenya. The focus of this study was restricted to the effects of technological innovation on the competitiveness of agribusiness firms but failed to discuss on other measures of growth in the horticultural sector. In addition, this study did not focus on the horticultural sector but rather on the agribusiness firms in Kenya. This creates a conceptual gap that the current study sought to fill. Waithera (2019) study also investigated the effects of international market entry strategies on growth of local horticulture firms in Nairobi County, Kenya. However, this study focused on international market entry strategies and not innovation, hence creating a conceptual gap. Additionally, most of these studies also failed to address on the aspect of growth of exports business in the horticultural sector, thus, necessitating the need to conduct this study. Hence, the current study aimed at determining the influence of innovation on the growth of export business among horticultural firms in Kenya.

1.3 General Objectives

The purpose for this study was to investigate the influence of innovations on the growth of export business among horticultural firms in Kenya.

1.3.1 Specific Objectives

The study was guided by the following objectives:

i. To assess the influence of product innovation on the growth of export business among horticultural firms in Kenya.
ii. To examine the influence of market innovation on the growth of export business among horticultural firms in Kenya.
iii. To determine the influence of supply chain innovation on the growth of export business among horticultural firms in Kenya.
iv. To examine the influence of financial innovation on the growth of export business among horticultural firms in Kenya.

1.4 Research Questions

i. What is the influence of product innovation on the growth of export business among horticultural firms in Kenya?
ii. What is the influence of market innovation on the growth of export business among horticultural firms in Kenya?
iii. What is the influence of supply chain innovation on the growth of export business among horticultural firms in Kenya?
iv. What is the influence of financial innovation on the growth of export business among horticultural firms in Kenya?

1.5 Significance of the Study

This study will be beneficial to the different stakeholders in the horticultural sector in Kenya. Exporters of the various horticultural products will be able to learn and understand how employing the various innovation practices help in promoting growth of their exports in the global market. They will also be able to benefit from identifying the innovation practices that they can adopt so as to increase their competitiveness against their competitors. The farmers will also benefit from this study by identifying some of the financial and product innovation practices that they can adopt to ensure that they get access to financial resources and their products are of quality and remain competitive both locally and internationally.

On the other hand, the study's recommendations will be very helpful to policymakers in the horticultural sector in putting together stronger regulations that will provide the sector the chance to restructure itself and to focus efforts on ensuring sustained growth and global competitiveness.

When the various innovation practices are employed in the horticultural sector, the government of Kenya will also benefit from the study. This is due to the fact that the growth of horticultural exports will increase the country's GDP and draw in more international investors.

The many researchers and scholars will use this study to expand their literature based on studies related to innovation and growth of exports in the horticultural sector. The researchers and scholars will also benefit from the theories discussed in this study since it will provide a good knowledge base on how to apply the theories to a study. The identified research gaps in this study will also inspire them to conduct additional research which will help to reduce the knowledge gap on available studies related to the current topic.

1.6 Scope of the Study

This research aimed on examining the influence of innovation on the growth of export business among horticultural firms in Kenya. It was also restricted to the influence of product innovations, market innovations, supply chain innovations and financial innovations on the growth of export business among horticultural firms in Kenya. This study was also guided by two theories namely, Diffusion of Innovation theory and New Growth theory. The target population for this study was all the 658 horticultural firms in Kenya registered under the Agriculture and Food Authority by 2020. The study was carried out between December 2022 and December 2023.

1.7 Chapter Summary

This chapter presented detailed discussion on the background of the study according to the global, regional and local perspective. It also entailed a good description of the key study variables, innovations, growth of export business, their measures and horticultural firms in Kenya. The section also clearly outlined the problem statement, the general objective and specific objectives, research questions, significance and scope of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter began by discussing in detail the relevant theories to the research topic which served as a solid foundation for this study. It also provided a comprehensive literature review of previous studies and arguments from publications that are relevant to the research topic. The summary of the empirical studies and their research gaps and a conceptual framework that showed the diagrammatic relationship between the independent and dependent variable were also presented in this study.

2.2 Theoretical Framework

Theoretical review is designed to elucidate, anticipate, question, and broaden existing information within the constraints of fundamental underlying assumptions (Kothari, 2007). The study was guided on the theory of Diffusion of Innovation and New Growth theory.

2.2.1 Diffusion of Innovation Theory

This theory was proposed by Everett Rogers in 1962 (Lundblad, 2003). It explores the process of adoption and diffusion of innovations within a population and provides insights into the factors that influence their acceptance or rejection (Mohammadi et al., 2018). It assumes that the existence of an innovation, which can be an idea, practice, or product is perceived as new within a particular context. It also assumes that innovation occurs within a social system, which can be a community, organization, or any other group of individuals sharing common norms, values, and communication channels. The theory also emphasizes on the importance of communication channels through which information about the innovation is transmitted. These channels can be interpersonal (face-to-face), mass media, or digital platforms (Dearing & Cox, 2018).

Rogers described innovation as a procedure where in most circumstances, the first few people to adopt a new thought or idea are receptive to it. More individuals are then open to it as a result of these initial innovators' efforts to share the information. The new concept or product then gradually spreads throughout the populace overtime until a saturation threshold is reached (Berry & Berry, 2018). Therefore, this led him to distinguish the categories of the adopters of innovation into five

groups and in form of percentages and presented in a bell-shaped curve image. This groups include; innovators, early adopters, early majority, late majority and laggards (Simpson & Clifton, 2017).

According to Tanye (2016), the objective of Rogers categorizing the different adopters was to optimize innovation and to fulfill the needs of all five categories rather than characterizing individuals into one of the five adopter categories. This implies that, for instance, within the context of an organization or the society at large, the impact of the innovators and the early adopters, who will serve as the opinion leaders or influencers, will trigger the initial take off of the innovation adoption process. As opinion leaders, they will influence their peers through peer-to-peer communication, role modelling and social media networking. Person to person communication is extremely effective at influencing people's attitudes toward the innovation, which in turn affects whether they embrace or reject the innovation. Whereas, social media platforms, such system-related films or DVDs or television advertising in the mainstream media, are effective at sharing information and spreading awareness about the innovation (Okour, Chong & Fattah, 2021).

The theory argues that innovation adoption process is also divided into five stages so as to demonstrate how the targeted peers or customers adopt a certain innovation. These stages include the awareness stage, persuasion stage, evaluation stage, implementation stage and adoption stage (Chiu, Chen & Chen, 2017). Furthermore, the success or acceptability of an innovation is also influenced by five distinct innovation characteristics including; compatibility, observability, relative advantage, trialability and complexity (Xia, Wu & Zhang, 2022). These distinct characteristics account for 49 to 87% of the adoption variations observed across the six groups of adopters. However, some scholars (Grabher & Stark, 2018; Cross & Hargadon, 2019 and Fagerberg & Verspagen, 2020) have criticized this theory for its excessive emphasis on individual characteristics and fails to adequately consider the social and contextual factors that shape the diffusion process. Grabher and Stark (2018) argues that the theory does not adequately address the power dynamics and the role they play in the adoption and diffusion of innovations.

Nevertheless, these criticisms do not discount the value of the theory on providing a foundational base on the process of adoption of different innovations. Different researchers in the different fields

and industries including public health, agriculture and manufacturing industries have widely employed this theory. For instance, the study by Doyle et al (2014) utilized this theory to examine the adoption and diffusion of health interventions, such as new treatments or prevention strategies. It used the Diffusion of Innovation model to discuss on the implementation of an integrated mobile device system into the nursing curricula and established that most nursing students were quite responsive to the system and benefitted from it.

Vecchio, Agnusdei, Miglietta and Capitanio (2020) research also used this theory to understand the adoption patterns and determinants of precision agriculture technologies among farmers in Italy. The study found that factors such as relative advantage, compatibility with existing practices, and trialability significantly influenced farmers' decisions to adopt precision agriculture technologies. It also highlighted the importance of social networks and information-sharing among farmers in facilitating technology adoption, emphasizing the need for targeted extension programs and peer learning initiatives to accelerate diffusion. Another study by Awalludin (2023) also utilized this theory to investigate the diffusion of e-commerce among SMEs in Indonesia, in particular the adoption dynamics and barriers. The study established that while e-commerce offered significant benefits in terms of market access, cost savings, and customer reach, SMEs faced challenges related to perceived complexity, lack of technical expertise, and limited access to digital infrastructure.

Similarly, the distinct innovation characteristics discussed in this theory including compatibility, observability, relative advantage, trialability and complexity provided a solid foundation for this research as it assesses the product, market, supply-chain and financial innovations adoption by horticultural firms in Kenya to influence growth of export business. In addition, the assumption of the theory that the adoption process of innovation is influenced by factors such as communication channels, social networks, and the context in which the innovation is introduced, was also useful to the study as most of the innovations examined (product, market and supply-chain) require a good consideration and investment in communication channels and social networks for them to be effective and influence growth of export business.

2.2.2 New Growth Theory

This theory was postulated by Paul Romer in the 1980s and early 1990s (Jones, 2019). The theory seeks to explain long-term economic growth by focusing on the role of innovation, knowledge, and technological progress. It also outlines that economic development in a country depends on the pursuit of profits, personal needs and wants. Raising people's wants and needs stirs risk-taking, innovations and self-improvement which become the engine for economic progress. It also indicates that competitiveness and personal ambitions elevate the economy by increasing consumption and economic activities (Nell & Thirlwall, 2018).

Schilirò (2019) uses this theory to emphasize on the importance of entrepreneurship, knowledge, innovation and technology, rejecting the popular view that economic growth is determined by external, uncontrollable factors. He contends that innovation and the development of new technologies do not happen by complete coincidence. Instead, it depends on the number of individuals searching for new innovations, technologies, or products to increase profitability. This is as a result of increased competition for available resources and to attract more customers between businesses, industries or even among different countries. Thus, in the application of this theory, Romer advises that organizations should support innovative and creative ideas as one of the key pillars of growth.

The theory also posits that technological progress is endogenous, meaning it can be influenced by economic factors such as investment in research and development (R&D), human capital development, and knowledge spillovers. It also emphasizes on the importance of knowledge diffusion and spillovers across firms, industries, and regions, highlighting the role of innovation and information exchange in driving economic growth. Moreover, this theory views knowledge as an asset for growth that is not subject to finite limits or diminishing returns like other assets such as capital or real estate (Zhao, 2019). It is also an essential intangible resource that an organization or industry cannot do without.

Achieving knowledge-driven growth requires a sustained investment in human capital. This human capital is then engaged in nurturing innovations within an organization or industry, by creating opportunities and making resources available. This increases their expectations and encourages them to develop new concepts and technology for the consumer markets. In return,

when this innovations are launched to the target population and are adopted, it increase their profits, overall performance and competitive advantage (Gong, 2020). However, some research scholars like Peet and Hartwick (2015) criticizes this theory by arguing that it lacks strong empirical evidence and predictive power. This is because it provides a theoretical framework for understanding the role of knowledge and innovation, but it failed to accurately quantify and measure these factors, making it difficult to test and validate the theory through empirical analysis. Ehrhart (2009) also argued that this theory may exacerbate income inequality by focusing on high-skilled workers and technological elites, neglecting the distributional consequences of innovation. Additionally, Sandberg, Klockars and Wilén (2019) also stated that the theory emphasizes on economic growth and technological progress but overlooks on environmental concerns and sustainability considerations, which can lead to resource depletion and ecological degradation.

Nevertheless, some of the reviewed empirical studies have found this theory relevant especially in exploring the linkage between innovation, productivity growth, and economic development across countries and industries. For instance, Audi, Ali and Hamadeh (2022) study used this theory to analyze the relationship between innovation inputs (such as R&D expenditure and human capital) and economic output (GDP per capita) across developed and developing countries. The study found strong empirical support for the positive impact of innovation on economic growth, with investments in R&D, education, and technology adoption contributing to productivity gains and income growth. In addition, the study by Perez-Aleman and Alves (2017) also examined the role of industrial policy interventions such as government support programs, technology incentives, and innovation clusters in promoting innovation and economic growth in Brazil. The study found that targeted industrial policy interventions, such as tax incentives for R&D, public-private partnerships, and innovation hubs, played a crucial role in fostering technological progress, export competitiveness, and job creation in Brazil.

Therefore, this theory was also relevant to this study as its assumptions and principles provides a theoretical framework for understanding the association between innovation and growth and the role of innovation in driving economic growth. It was also used in assessing how product, market, supply-chain and financial innovations adoption contribute to productivity gains, export competitiveness, and long-term growth in the horticultural sector.

2.3: Empirical Review

This section is crucial for examining previous empirical research papers, specifically addressing knowledge, contextual, and empirical gaps that the present study aims to address.

2.3.1: Product Innovation and Export Growth

Product innovation is the process of developing and introducing new or significantly improved products to the market (Babenko, 2017). It can take various forms, such as introducing entirely new products, improving existing products, or adding new features or capabilities to existing products. It also typically involves a combination of research, development, design, and marketing efforts aimed at meeting customer needs, addressing market gaps, or capitalizing on emerging trends and opportunities. Therefore, successful product innovation requires a deep understanding of customer preferences, market dynamics, and technological advancements (Aksoy, 2017).

A study by Jusufi, Ukaj and Ajdarpašić (2020) investigated on the effect of product innovations on the export performance of SMEs in Kosovo. It used the probit model to analyze the innovation pattern in 100 manufacturing and exporting SMEs in Kosovo. The required data was obtained through administering questionnaires to senior managers in the targeted SMEs. The results disclosed that there is an association between the type of product innovation and an increase in exports. For instance, incremental innovation was found to have a strong positive relationship with export growth of SMEs. However, this study investigated on the export performance of SMEs in Kosovo while the current study focused more on the export growth of horticultural firms.

A study by Ayllón and Radicic (2019) explored the importance of innovative strategies such as internal development and external acquisitions on successful product and process innovations and their effect on firm's growth in Spanish manufacturing firms. The results were drawn from longitudinal data of the selected manufacturing firms. The study noted that successful product and process innovations cannot be sustained by internal development but will require a combination of both the internal development and external acquisitions including purchase of machinery and equipment. The findings also revealed that a combination of product and process innovations has a positive and significant effect on firm's growth. Access to capital is also essential for supporting both innovation and growth performance. Moreover, workforce and management skills were found to be more important among staff members than only acquiring tertiary education. The

study further concluded that effects of global connections on growth and innovation are not always positive. This study focused on the growth of manufacturing firms in Spain with no specialization on growth in the targeted manufacturing firms.

Zhang and Zhu (2016) study examined the impact of market orientation, product innovation and environmental turbulence on export performance in manufacturing firms in China. The study was grounded on the resource-based view theory, which was used in explaining more about innovation orientation and innovations resources. The researcher also conducted a questionnaire survey on the 220 manufacturing exporters in China. The results found that market orientation played a significant role in promoting the different product innovations in the export market in China. Market orientation and product innovation were found to have a positive and significant relationship with export performance. On the other hand, environmental turbulence had a positive and significant moderating effect on the association between market orientation and export performance. However, this study was grounded on resource-based view theory while the current study was founded on diffusion innovation theory and new growth theory.

Another study by Tavassoli (2017) analyzed the role of product innovation on the export behaviour of Swedish firms. The study used two types of the community innovation survey of Swedish firms combined with already registered data on firm-level to evaluate the impact of firms' innovation output and input on the export propensity and intensity. Product innovations was measured in terms of innovation inputs and sales of innovation outputs whereas measures of export behaviour were export propensity and intensity. The findings revealed that sales of innovation output had a positive and significant effect on export intensity than on export propensity. The results also showed that there was no direct effect of innovation inputs on export behaviour. However, this study failed to discuss on the aspect of growth of exports instead it discussed on the export behaviour of Swedish firms.

Avenyo, Konte and Mohnen (2019) study on the impact on product innovation on job creation in Sub-Saharan Africa (SSA) countries noted that innovation has been a key factor in most organizations since it plays an important role in promoting firm employment. The study employed a combination of Enterprise survey with Innovation Follow-up survey of SSA countries that were available to collect data. The Dose Response Model was also adopted in the study to account for

treatment responses that were continuous and heterogeneous. The results indicated that product innovations have a positive and substantial impact on total employment. The study analysis also found that product innovations frequently led to the creation of skilled and unskilled jobs, as well as occupations that are both temporary and permanent. However, product innovations tend to have a more favorable impact on temporary and unskilled employment than they do on permanent and skilled employment, prompting concerns about the safety and quality of the new jobs they create. However, this study consists of a contextual and conceptual gap since it used job creation as its dependent variable which is not an area of focus in the current study.

Kiveu, Namusonge and Muathe (2019) study assessed the influence of innovation on the competition of SMEs in Nairobi County, Kenya. The study noted that innovation has become one of the key strategies in SMEs and government policy which enhances firm's competitiveness. It used secondary data obtained from a sample of 284 enterprises in the period between 2014-2016. The multiple linear regression analysis was also used to analyze the effect of innovation on SMEs competitiveness. The results of the study showed that majority of SMEs (97%) had adopted innovative practices particularly incremental innovations. The regression findings indicated that product innovation had a positive non-significant effect, whereas process, marketing, and organizational innovations had positive and significant effects on competitiveness.

The study suggested that SMEs should employ high novelty technologies to boost their competitiveness, and this can be achieved by establishing connections and working together in innovation with institutions that highly support innovative research work. This study results were generalized on four types of innovations without majorly discussing on product innovation. The study also relied on data was only obtained from secondary sources while the current study relied more on primary data since it is more accurate and less exposed to biasness.

Kamau and Ndung'u (2017) study also sought to determine the role of product innovation in expanding export markets for horticultural products in Kenya. It was founded on Diffusion of Innovation theory and Dynamics Capabilities theory. It also utilized a quantitative research approach where primary data was collected using structured questionnaires from a sample of 145 horticultural firms selected by simple random sampling. The findings revealed that product

innovation significantly contributes to the expansion of export markets in the horticultural sector. Firms that introduced innovative products were also able to enter new markets and penetrate existing markets more effectively. Moreover, the study revealed that product innovation positively influenced export revenue growth, as innovative products commanded higher prices and attracted more customers. Therefore, the study recommended that horticultural firms should focus on developing unique and differentiated products that meet the specific needs and preferences of target export markets.

Another study by Muthuri and Wanjiru (2020) also examined the impact of product innovation on the export growth of horticultural firms in Kenya. It was guided by Diffusion Innovation theory and the Resource-based view theory. The target population comprised of all horticultural firms in Kenya and used stratified random sampling technique to select 226 employees from the horticultural firms. The study also adopted a structured questionnaire to collect data which was analyzed using multiple regression analysis. The regression results indicated that product innovation has a positive impact on the growth of export business in the Kenyan horticultural sector. Exporters who introduced innovative products were able to penetrate new markets, increase export volumes, and achieve higher revenues. However, the study also identified challenges such as limited access to financing, lack of research and development support, and inadequate infrastructure that hindered the adoption and implementation of product innovation strategies among Kenyan horticultural exporters. Thus, the study concluded by suggesting that horticultural firms in Kenya prioritize investment in new product development and packaging innovation to enhance export performance. Firms should also consider their unique characteristics and resources, such as size and export experience, when formulating product innovation strategies.

2.3.2: Market Innovations and Export Growth

Market innovation is the development and implementation of new strategies, business models, or approaches that create or capture value in the market (Kahn, 2018). It involves identifying and leveraging untapped market segments, emerging trends, redefining customer relationships, and finding innovative ways to deliver products or services to customers. It also involves continuous monitoring and analysis of market trends, competitive forces, and customer insights, so as to gain

a competitive edge, expand market presence, and deliver value to customers in unique and compelling ways (Amare et al., 2019).

A study by Silva, Styles and Lages (2017) examined the extent to which breakthrough innovation that is both tech-innovations and market innovations have a positive impact on both economic and strategic export performance. The study targeted the Portuguese manufacturing exporting firms and used partial least squares structural equation modeling (PLS-SEM) to analyze the primary data collected. Tech-innovation combines technology advancements with market options to enhance customer value. Market innovation is seen when a product's concept or benefits diverge from those that would normally serve those markets.

The study findings revealed that technological innovation positively and significantly influenced economic and strategic export performance. Whereas, market innovation had a negative and significant effect with strategic export performance. This implies that in order to provide value, exporters must develop solutions that are in collaboration with importers. Moreover, the study also noted that in order to meet expectations, value creation in terms of both technological and market innovation must involve importers, since it will boost both firm's short and long-term export performance. This study failed to bring out the aspect of growth of export business instead more emphasizes were made on export performance. In addition, the study used the PLS-SEM model while the current study relied more on multiple linear regression models.

Udriyah, Tham and Azam (2019) carried out a study to analyze the effects of market orientation and innovation on the competitive advantage and business performance of textile SMEs in Selangor, Malaysia. The study selected a sample of 150 textile SMEs who participated in filling the well-structured questionnaire. The primary data collected was then analyzed using path analysis on the SPSS 20.0 statistical software. The results of the path analysis indicated that market orientation and innovation positively and significantly affected competitive advantage. This accounted for 46.3% of the variations in competitive advantage. In addition, market orientation and innovation have a substantial effect on business performance both directly and indirectly through competitive advantage. According to the study findings, this accounted for 58.4% of the variations in competitive advantage. The research area in this study was on SMEs

dealing with textile products instead of horticultural products which was the area of focus in the current study.

Further, Xie and Li (2018) conducted a study on the impact of firm innovations, institutional development on home and export markets for Chinese manufacturing exporters. It also used a quantitative methodology and conducted a cross-sectional, exploratory empirical study. The results showed that exporters in developing economies that have invested in Research & Development (R&D) and have developed better market intermediaries in their domestic market, had a positive and significant impact on firm innovations. Whereas market openness in the domestic market had a tendency of reducing firm innovations. Moreover, exporters in developing economies were found to be more innovative than exporters in developed economies. Thus, the study also concluded that institutional development played a significant moderating role on the relationship between firm innovations and exporting. Nonetheless, this study did not bring out the aspect of growth of exports and it also used exploratory empirical study which was not the case in the current study.

A study by Boso, Adeola, Danso and Assadinia (2019) examined the effect of export marketing capabilities on export performance of industrial exporting firms in Sub-saharan Africa. The target population comprised of 162 firms and used multiple informant and time-lagged primary data. The results disclosed that market responsiveness capability substantially increases export performance especially when combined with product innovation capability. However, at high levels of counterproductive competition, the impact of both market responsiveness capability and product innovation capability are reduced. This implies that the high capability of the industrial exporting firms to respond to the export markets needs and the higher expertise in introducing new products into the export markets is not necessarily beneficial to them since the outcome of export performance is more dependent on the level of counterproductive competition. The geographical research area for this study was too large, meaning that the findings were also generalized and could be easily exposed to biasness since it only targeted 162 firms from the 49 countries in Sub-Saharan Africa.

Onyango (2016) study investigated on the influence of digital marketing strategies on performance of cut flowers exporting firms in Kenya. In this study, digital marketing is considered as one of

the innovative strategies of improving marketing communication and products promotion. The study used a mixed-research approach consisting of both qualitative and quantitative research methodology. The target population comprised of 30 cut flowers exporting firms in Kenya, where the senior managers were engaged in semi-structured interviews. The results revealed that E-mail marketing, digital displays, websites and online advertising were the most commonly used digital marketing strategies in cut flowers exporting firms in Kenya.

The primary advantage of digital marketing stems from its extraordinary capacity to deliver information in a tailored and interactive way without regard to time or location. These strategies were also found to have a positive and significant impact across all elements of firm's performance. The study finding's further indicated that digital marketing and performance were positively and strongly correlated to each other. Therefore, the study recommended cut flower companies who have not been employing digital marketing to do so to a great extent, in order to remain competitive and improve organizational performance. This study also failed to bring out the aspects of growth of the cut flowers in Kenya instead it discussed more on organizational performance.

Another study by Amare et al (2019) assessed the impact of smallholder farmer's participation in avocado exports markets on the labour markets, farm yields, sales prices and income in Kenya. The research surveyed prominent avocado farmers in Kenya, employing the switching regression framework to assess the statistical impact of the independent variable on the dependent variables. Results revealed that farmers engaged in export markets typically possessed well-established large farms, received extensive training, and predominantly cultivated Hass-type avocado trees. The study also found that participation in avocado export markets will have favorable effects on income, revenues, prices, and labor inputs. However, there is a compensating effect in the form of higher pricing and reduced outputs, reflecting the tougher quality criteria of export markets. Thus, the study suggested that governments should pay attention to how smallholder farmers can participate in export markets while simultaneously concentrating on resource accumulation for farmers.

2.3.3: Supply-Chain Innovations and Export Growth

Supply-chain innovations entails identifying and implementing innovative solutions to enhance various aspects of supply chain, including procurement, production, logistics, inventory

management, and distribution (Wang et al., 2018). This encompasses a wide range of initiatives, such as adopting advanced technologies, improving collaboration and communication, streamlining operations, reducing costs, and enhancing sustainability. Employing these initiatives is aimed to optimize the flow of goods, information, and resources across the entire supply-chain network, from suppliers to manufacturers, distributors, retailers, and ultimately to end customers (Moran, 2018). It will also help organizations to achieve improved operational efficiency, reduced costs, faster time-to-market, enhanced customer satisfaction, and a competitive advantage in the marketplace (Kariuki, Ngugi & Mburu, 2022).

Ayoub and Abdallah (2019) conducted a study to investigate on the effect of supply-chain agility (SCA) on supply-chain responsiveness (SCR), supply-chain innovativeness (SCI) and export performance (EP) in the manufacturing industry in Jordan. The study also sought to determine the mediating effect of SCR and SCI on the relationship between SCA and EP. The researcher administered questionnaires to a target population of 290 manufacturing firms in Jordan. The research hypotheses was tested using the structural equation modelling. The findings revealed that SCA had a direct and positive effect on export performance but an indirect and positive effect on SCR and SCI. Moreover, SCR and SCI were found to fully mediate the relationship between SCA and EP. Nevertheless, in this study SCI was used as a mediating variable instead of an independent variable which was the case in this study.

Another study by Al-Ghwayeen and Abdallah (2018) examined the effect of green supply chain management (GSCM), environmental performance on export performance of manufacturing companies in Syria. The researcher carried out a survey to obtain data from 221 manufacturing firms from different industry types. The study also used the SPSS, Amos and structural equation modelling to test research hypothesis. The findings indicated that GSCM positively and significantly impacted export and environmental performance. Environmental performance was also found to have a positive and significant influence on export performance. Hence, the study revealed that environmental performance has a positive and significant mediating effect on the relationship between GSCM and export performance. The discussion on the GSCM did not explain on the green innovative strategies implemented by the manufacturing companies, on the

other hand the export products were mainly machineries and motor vehicles and not horticultural products.

A study by Wang et al., (2018) examined how supply chain innovation activities such as the cross-border e-commerce can become the core to a firm's business model innovations in local firms in China. This study investigated on the Zongteng company since it is among the first cross-border e-commerce companies in China. Primary data from the senior managers and secondary data was obtained from the internal company documents and open online resources. The research revealed that the company's business model required adjustments, which included new players and alteration of the relative positions of those already present. It also found that construction of foreign warehouses facilitated three different supply chain localizations in cross-border e-commerce for export markets, including sales, warehousing, and R&D localization. As a result, the study concluded that cross-border e-commerce is driven by and primarily employs the three localization strategies as its business model innovation. This study failed to discuss the relationship between supply-chain innovations and growth of export business. It also relied on secondary data while the current study used primary data.

Further, Khalil, Khalil and Khan (2019) study assessed the relationship between supply-chain management practices, innovation and organizational performance in SMEs in Punjab, Pakistan. The study gathered data from 207 SMEs and used the PLS-SEM to analyze the research hypotheses. The results showed that quality of information, internal supply-chain practices and lean practices had a favourable and significant influence on organizational performance. However, strategic partnership with supplier and level of information sharing were found to have no influence on organizational performance. Furthermore, all the five supply chain management practices had a positive and significant influence on organizational performance. Additionally, innovation significantly influenced the relationship between supply chain management practices and organizational performance. This study used innovation as a mediating variable rather than the main independent variable while the dependent variable was organizational performance instead of growth of exports business.

Gonyora et al (2021) conducted a study on how a public innovation strategic alignment affects decision-making for a selected South African automotive supply chain at multiple levels of

management to retain competitive advantage. The study employed an exploratory, qualitative approach and carried out semi-structured interviews on the CEOs, senior managers and Research & Development managers in 4 selected SMEs. The results established that the process of strategic alignment, which depends on the operational levels of employees in an organization, is essential to the implementation of open innovation strategies. Therefore, the study recommended that managers of enterprises should make sure that strategic alignment between and among themselves spreads to all levels in their firms, in order to improve sustained competitive advantage. This study consisted of a contextual and conceptual gap since the independent variable was public innovation and the dependent variable was decision-making in automotive supply-chain firms.

Kariuki, Ngugi and Mburu (2022) study assessed the effect of reverse logistics, a sustainable supply-chain practice and value addition on the performance of horticultural industry in Kenya. The study employed the descriptive research design and targeted a total population of 289 horticultural firms in Kenya. To obtain a sample size of 259 firms, the study used the simple random sampling method. The questionnaires were also used to collect data from the selected sample size. The results found that reverse logistics and performance of horticultural firms were positively and significantly correlated. In addition, value addition was found to have a positive and significant moderating effect on the association between reverse logistics and performance of horticultural firms in Kenya. This research used the simple random sampling method which is costly and time-consuming especially if the target population is large.

Poulsen and Kirori (2017) study investigated the effect of supply-chain innovation on the performance of firms in the horticultural sector in Kenya. It was guided by the Resource-Based View theory and utilized a survey design to collect data from 180 firms in the horticultural sector in Kenya. The results found that supply-chain innovation positively affect firm performance, with the strongest effect coming from process innovation. The study also found that operational performance mediated the link between supply-chain innovation and firm performance. As a result, the study recommended that firms should focus on improving their operational performance to fully realize the benefits of supply-chain innovation.

2.3.4: Financial Innovation and Export Growth

Financial innovation pertains to the creation and introduction of new products, services, technologies, or business models that enhance the efficiency, accessibility, and effectiveness of financial systems and processes (Effiom & Edet, 2022). It can also involve designing of new financial instruments, the development of novel payment systems, the implementation of advanced technologies for financial transactions, creation of alternative funding mechanisms, and the introduction of innovative risk management strategies. This is aimed to enhance the speed, convenience, and security of financial transactions, expand financial access to underserved populations, reduce costs, and improve risk management practices (Muthoka, 2020).

A research by Yuan, Ye and Sun (2021) assessed the impact of financial innovation on green innovation in manufacturing industries in OECD countries. The study used patent data from 20 manufacturing industries and research data was gathered from financial reports of the selected firms between 2014-2019. The findings demonstrate that in more high-tech-intensive businesses, financial innovation can substantially enhance green innovation. The study also revealed that by improving the ability of financial intermediaries to screen information, financial innovation has a positive impact on industries' adoption of green innovation. The study also discovered that although there is no clear correlation between financial innovation and the proportion of green innovation, there is evidence of a promotion effect in nations with stricter environmental regulations, lower levels of banking competition, and industries with higher energy intensity. It also showed that among alternative energy innovation, the promotion effect of financial innovation on green innovation is more substantial. However, this study used patent data and also discussed on the effect of financial innovations on green innovations rather than growth of export business.

Gündoğdu and Taşkin (2017) study assessed the relationship between financial innovations and performance of banks in Turkey. The financial innovation instruments included; banking system, online banking and credit cards while the performance measures were ROA, ROE and net profits. Secondary data was gathered from official financial reports in the period between 2011-2014. The data was then analysed using the simple regression analysis which revealed that only the use of credit cards positively and significantly impact ROA, ROE and net profits. Therefore, the research findings suggest that the favorable effects on ROA, ROE and net profits indicate a

positive and noteworthy influence of credit card usage on the overall performance of the banking system in Turkish banks. The study area was on banks in Turkey instead of horticultural firms in Kenya

Effiom and Edet (2022) study explored the impact of financial innovation on the performance of SMEs in Nigeria. It used quarterly data of financial innovation indicators and an autoregressive distributed lag approach. These indicators included; Automated Teller Machine, Point of Sales, Internet Banking, Cheques, Nigeria Inter-bank Settlement System Electronic Fund Transfer, Nigeria Inter-Bank Settlement System Instant Payment, and Mobile Money Operations. The results outlined that the financial innovation indicators had a positive and significant impact on performance of SMEs in Nigeria. The study used autoregressive distributed lag approach however, the current study used multiple linear regression analysis approach.

A study by Puatwoe and Piabuo (2017) investigated on the effect of financial sector development on economic growth in Cameroon. The financial development indicators included; broad money, deposit and domestic credit to private sector. The study used time series data which was then analyzed using the Auto-Regressive Distribution Lag (ARDL) technique of estimation. The results disclosed that in the short-run monetary mass and government expenditure have a positive association with economic growth whereas bank deposits and private investments had a negative relationship with economic growth. Moreover, the study also indicated that in the long-run, the four elements positively and significantly affect economic growth. The discussion on economic growth did not bring out the contribution of export business yet it plays a significant role on it.

Maleto (2016) study examined the effect of financial innovation on growth of SACCOs in Kenya. The study utilized the descriptive research design and census method to obtain a sample of 150 SACCOs that are licensed by the Sacco Society Regulatory Authority (SASRA). It also used on secondary data extracted from published financial reports of the SACCOs in the period between 2011 to 2015. The regression results indicated that ATM, mobile banking, internet banking and EFT accounted for 78.1% of the variations on the growth of SACCOs in Kenya. The findings showed that the value transacted using ATM, mobile banking, internet banking and EFT have a positive and significant effect on the growth of SACCOs in Kenya. It also suggested that SACCOs should integrate their monetary policy tools to their financial reports. It also

recommended that SACCOS should place greater emphasis on internal issues such as capital adequacy, asset quality, income potential, liquidity management and management effectiveness, since they affect efficiency of SACCOs. Nonetheless, this study investigated on growth of SACCOs and not horticultural firms.

Muthoka (2020) study examined the effect of financial innovation and bank ownership on market capitalization of commercial banks in Kenya. The study was founded on the Transaction cost theory, Market efficiency theory, Silber's theory and Schumpeter theory. The target population comprised of 11 commercial banks that are listed on the Nairobi Security Exchange. Panel data was also collected from published quarterly reports in the period between 2013 to 2017. Panel data models were used to generate descriptive and inferential statistics for the data analysis. The Granger causality test was also employed to investigate the relationships between the variables.

The results showed that financial innovation measures, internet banking and plastic credit card innovations had a positive and significant impact on market capitalization of listed commercial banks in Kenya. The results also found that agency banking and mobile banking had a positive impact on market capitalization. Additionally, the moderating variable, bank ownership, whether domestic or foreign, was found to have no moderating effect on the association between financial innovations and market capitalization of Kenya's listed commercial banks. Thus, the study recommended that the management of commercial banks and policymakers should adopt financial innovations and to ensure a favorable environment for the adoption of financial innovations, appropriate measures such as advantageous legislation and regulations should be implemented. However, market capitalization is just one of the measures of growth and the study area was on commercial banks in Kenya.

Ngugi and Wamalwa (2018) research explored the effect of financial innovation on the export performance of firms in the horticultural sector in Kenya. The study was guided on the Diffusion of Innovation theory and the Dynamic Capabilities theory. It also used a survey design and collected data from 174 firms in the horticultural sector in Kenya. The data was also analyzed using hierarchical regression analysis to examine the relationships between the variables. The study results revealed that financial innovation had a positive and significant relationship with export performance. The findings also noted that financial risk management innovation had a

positive and significant effect on export performance. The study also found that firm size moderated the relationship between financial innovation and export performance, with the effect being stronger for smaller firms. Thus, the study advocated that smaller firms should focus more on financial risk management innovation to fully realize the benefits of financial innovation.

2.4: Summary of the Literature Gaps

The empirical studies discussed have shown a significant influence of the different indicators of product, market, supply-chain and financial innovations. However, majority of these studies have failed to show the influence of the different innovations on growth of export business and especially in horticultural firms. This implied that these research area has not been fully exploited by the researchers and scholars. In addition, the studies present various research gap that the current study sought to fill by examining the influence of innovation on the growth of export business among horticultural firms in Kenya.

For instance, studies by Avenyo, Konte and Mohnen (2019), Ayllón and Radicic (2019), Kiveu, Namusonge and Muathe (2019), Silva, Styles and Lages (2017), Udriyah, Tham and Azam (2019), Wang, Jia, Schoenherr and Gong (2018) and Yuan, Ye and Sun (2021) had conceptual gaps, since they failed to discuss on the growth of export business. The studies by Gonyora, Migiro, Ngwenya and Mashau (2021), Kariuki, Ngugi and Mburu (2022) and Puatwoe and Piabuo (2017) also consisted of contextual gaps, this is because they discussed on other elements that relate to financial innovation but not specifically financial innovations. On the other hand, studies by Effiom and Edet (2022), Muthoka (2020), Zhang and Zhu (2016) and Xie and Li (2018) had methodological and theoretical gaps that this study will seek to fill. Table 2.1 below presented the summary of the specific research gaps of the discussed studies and indicated how the current study sought to address them.

Table 2.1: Summary of Literature Gaps

Author	Title/ Research Objective	Findings	Research Gap	How to address the Research Gap
Jusufi, Ukaj and Ajdarpašić (2020)	The effect of product innovations on the export performance of SMEs in Kosovo	The results revealed that incremental innovation have a strong positive relationship with export growth of SMEs.	The study area was on SMEs in Kosovo and not horticultural firms in Kenya.	This research collected data from the horticultural firms in Kenya only.
Ayllón and Radicic (2019)	The importance of innovative strategies such as internal development and external acquisitions on successful product and process innovations and their effect on firm's growth in Spanish manufacturing firms	The study findings revealed that a combination of product and process innovations has a positive and significant effect on firm's growth.	The study discussed on growth of manufacturing firms rather than growth of export business in horticultural firms.	This study restricted itself to analyzing the influence of product innovations on the growth of export business in horticultural firms in Kenya.

Silva, Styles and Lages (2017)	The extent to which breakthrough innovation that is both tech-innovations and market innovations have a positive impact on both economic and strategic export performance.	The findings indicated that technological innovation had a positive and significant effect on economic and strategic export performance. Whereas, market innovation had a negative and significant effect with strategic export performance.	The study used the PLS-SEM model to determine the relationship between the dependent and independent variable. It also failed to discuss on the aspect of growth of exports instead emphasized more on export performance.	The current study relied more on multiple linear regression models.
Udriyah, Tham and Azam (2019)	The effects of market orientation and innovation on the competitive advantage and business performance of textile SMEs in Selangor, Malaysia.	Market orientation and innovation had a positive and significant effect on competitive advantage. In addition, market orientation and innovation have a substantial effect on business performance both directly and	The study path analysis to analyze the casual relationship between the independent and dependent variable. The study area also focused on textile SMEs and failed to discuss on growth of export business.	This study used structural equation modelling to determine the relationship between innovations and growth of export business in horticultural firms.

		indirectly through competitive advantage.		
Wang, Jia, Schoenherr and Gong (2018)	How supply chain innovation activities such as the cross - border e-commerce can become the core to a firm's business model innovations in local firms in China.	The study found that construction of foreign warehouses facilitated three different supply chain localizations in cross-border e-commerce for export markets, including sales, warehousing, and R&D localization.	The study did not bring out the effect of cross-border e-commerce on growth of export business in horticultural firms.	This study discussed on the influence of supply-chain innovations on the growth of export business in horticultural firms in Kenya.
Khalil, Khalil and Khan (2019)	The relationship between supply chain management practices and organizational performance with the mediating role of innovation in SMEs in Punjab, Pakistan.	Quality of information, internal supply chain practices and lean practices had a favourable and significant influence on organizational performance.	In this study innovation was used as a mediating variable. The study discussed on organizational performance of SMEs.	This study used innovations as the main independent variable and examined its influence on growth of export business.

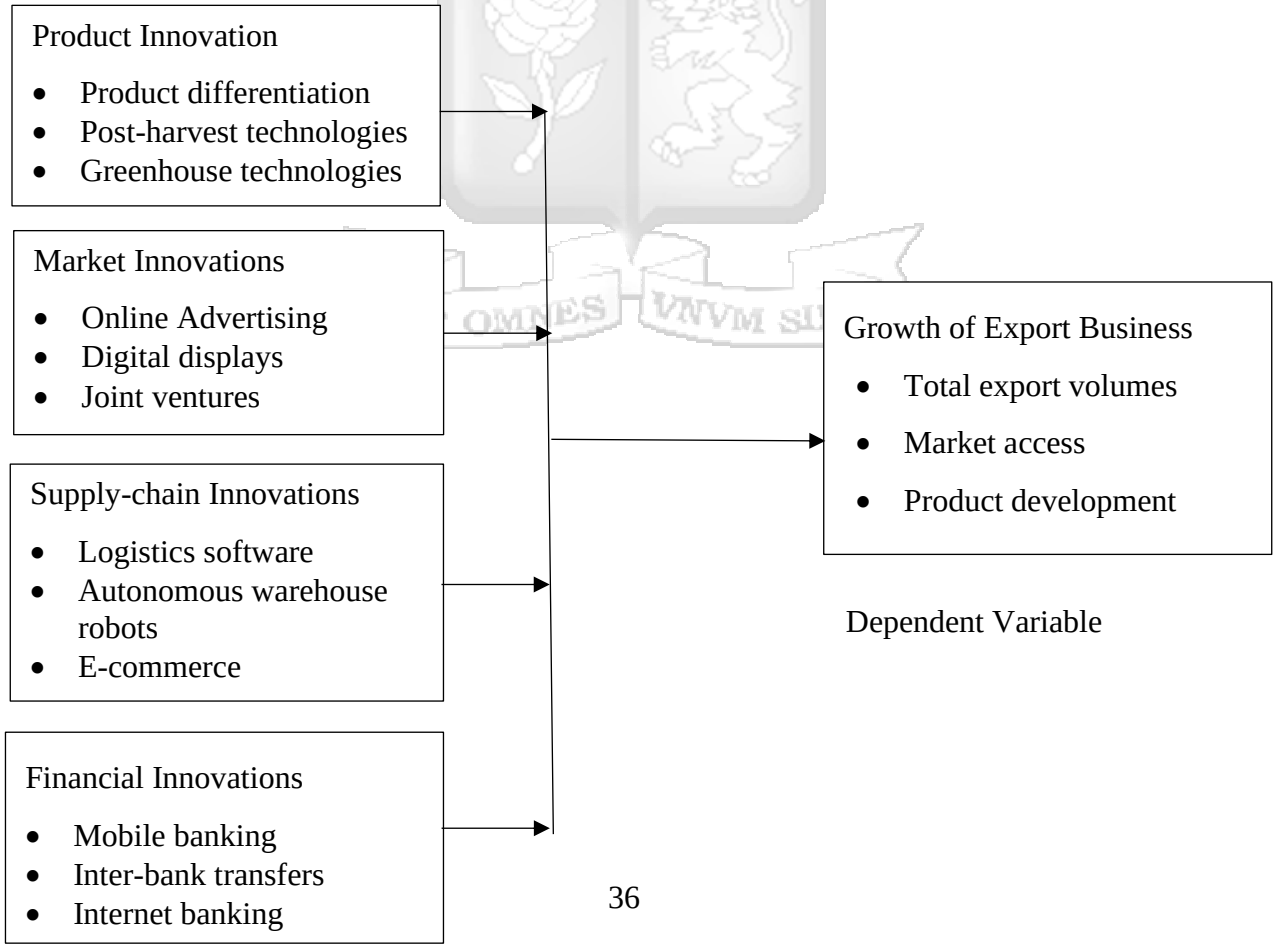
Yuan, Ye and Sun (2021)	Impact of financial innovation on green innovation in manufacturing industries in OECD countries	The findings demonstrate that in more high-tech-intensive businesses, financial innovation can substantially enhance green innovation.	The study's dependent variable was green innovations. It also relied on patent data from the manufacturing firms.	This study relied more on primary data since its less exposed to biasness.
Puatwoe and Piabuo (2017)	The effect of financial sector development on economic growth in Cameroon	The results revealed that in the short-run monetary mass and government expenditure have a positive relationship with economic growth whereas bank deposits and private investments have a negative relationship with economic growth.	The study failed to bring out the indicators of financial innovation and economic growth especially exports which is area of focus in the current study.	This study limited its findings to financial innovation indicators and growth of export business in horticultural firms.

Source: Research Data (2023)

2.5: Conceptual Framework

A conceptual framework helps explain the various structures of research work in a visual or textual format and their linkages by incorporating the fundamental elements of research theory (Bryman, 2016). It is a tool for analyzing linked concepts and identifies the pertinent variables for the study including the independent, dependent, moderating, mediating, and control variables (Bryman, 2016; Rishad, 2019). It's often developed based on a review of the literature on previous studies that have been done on the research topic. It provides better guidance on the researcher when constructing questions on the selected research instruments, collecting and analyzing data. The independent variables in this study were; product innovation, market innovation, supply-chain innovation and financial innovation while the dependent variable was growth of export business in horticultural firms in Kenya.

Figure 2.1: Conceptual Framework



Independent Variables

Source: Research Data (2024)

2.6: Operationalization of the Study Variables

This study sought to examine the influence of innovation on the growth of export business among horticultural firms in Kenya. The independent variables included; product innovation, market innovation, supply-chain innovation and financial innovation while the dependent variable was growth of export business. Table 2.2 below gave a breakdown of the variable indicators and the measure of each study variable, where in this case the research used the 5 point-Likert scale.

Table 2.2: Operationalization of the Study Variables

	Variable Name	**Variable Indicators**	**Measure**	**Source**
	Product Innovation	• Product differentiation • Post-harvest technologies • Greenhouse technologies	5 point- Likert Scale	Research Data
	Market Innovation	• Online Advertising • Digital displays • Joint ventures	5 point- Likert Scale	Research Data
	Supply-chain Innovations	• Logistics software • Autonomous warehouse robots • E-commerce	5 point- Likert scale	Research Data
	Financial Innovations	• Mobile banking • Inter-bank transfers • Internet banking	5 point- Likert Scale	Research Data
	Growth of Export Business	• Total export volumes • Market access	5 point- Likert Scale	Research Data

		• Product development		

Source: Research Data (2024)

2.7: Chapter Summary

This chapter highlighted the theories that established the foundation of this study. These theories include; diffusion of innovation theory and new growth theory. It also reviewed previous studies conducted by different scholars, which related to product innovation, market innovations, supply-chain innovation, financial innovation and growth of export business. In addition, it also provided the summary of the reviewed studies and identifies the literature gaps that the current study aimed to fill. The conceptual framework and operationalization of the study variables were also outlined in this chapter. The next chapter looked at the research methodology to be applied in this study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1: Introduction

This chapter outlined the research methods that were applied in this study. This included; the research philosophy, research design, target population, sample and sampling technique, data collection instruments, reliability and validity of the research instruments, data analysis and presentation techniques.

3.2: Research Philosophy

A research philosophy refers to the framework that establishes the guidelines for conducting research based on beliefs surrounding a certain reality and the nature of knowledge (Kennedy, 2017). It also provides the foundational base of how information about a research topic ought to be gathered, analyzed and applied. The main research philosophies include; positivism, interpretivism and critical realism philosophies. However, this study will be guided by the positivism philosophy. According to Hürlimann et al (2019), the focus of positivism is on discovering rational or quantitative proofs that come from statistical analysis as well as verifying hypotheses objectively. Thus, positivists frequently provide accurate, objective, and quantitative data using sufficiently large sample sizes.

The positivism approach places more emphasis on believing in what has been observed and gives scant attention to the participants' thoughts and feelings (Dougherty, Slevc & Grand, 2019). The approach is also called inductive reasoning since it involves gathering information through observation and measurement, which then allows researchers to discover and measure behavioral patterns and enable them to draw conclusions regarding a certain phenomenon (Khaldi, 2017). Therefore, this approach was preferred in this study since data to be collected for analysis was more of quantitative data. The approach also ensured that the researcher carried out through quantitative analysis and provide detailed and accurate findings and conclusions regarding the influence of innovations on the growth of export business among horticultural firms in Kenya.

3.3: Research Design

Sileyew (2019) defines research design as the strategy or approach used to conduct research of a particular subject with the intention of answering predetermined research questions through the collection, interpretation, analysis, and presentation of data. It oftenly involves systematic methods that can either be qualitative or quantitative research designs. The common types of research designs include; descriptive, exploratory and experimental research designs (Dannels, 2018). This study adopted the cross-sectional descriptive survey. Bloomfield and Fisher (2019) defines a cross-sectional descriptive survey as a systematic method of collecting data from a selected sample unit at a specific point in time, with the goal of generating quantifiable characteristics or attributes of the target population. It also involves collecting information on various variables of interest simultaneously, allowing researchers to analyze the relationships, trends and patterns within the population (Spector, 2019). Therefore, this research design enabled the researcher in this study to conduct a comprehensive overview of the population's characteristics and draw relationships, trends and patterns on innovations and growth of export business among horticultural firms in Kenya. This design was also beneficial to the researcher as it is relatively quick and cost-effective as compared to other research designs such as longitudinal studies (Wang & Cheng, 2020).

3.4: Target population

Target population is defined as the entire set of entities that are available for which the data collected can be used to draw inferences and gather meaningful data for research (Asiamah, Mensah & Oteng-Abayie, 2017). This study's target population comprised of 658 horticultural firms in Kenya registered under the Agriculture and Food Authority by 2023 (See Appendix iii). The 658 horticultural firms thus, formed the unit of analysis of this study while the operations or production or innovation managers formed the unit of observation.

3.5: Sampling Technique and Sample Size

A sampling technique refers to the processing of selecting individual members who will be a representation of the target population and will be utilized to draw conclusions about the entire target population (Etikan & Bala, 2017). Whereas, a sample size is defined as the number of participants that constitute the sample of the target population. A sample is a small group of

individuals who are a representative of the target population and are used for the study analysis (Taherdoost, 2017). The purposive sampling technique, also known as judgmental, selective, or subjective sampling was employed to selectively identify the operations managers or production managers or innovation managers from the 658 horticultural firms in Kenya. These managers were selected because they are well aware of the innovation practices employed in their firm. By targeting individuals or groups with specialized knowledge, expertise, or unique perspectives, the researcher gathered in-depth and detailed information that is directly pertinent to the research questions. This targeted approach enhances the quality and richness of the data collected, enabling researchers to gain deeper insights into the phenomenon under investigation (Thomas, 2022).

To obtain the sample size of the study, the researcher used the Yamane (1967) formula as follows;

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

Where;

n= Sample size

N= Population size

e= Margin of error

Therefore, the sample size for the respondents was:

$n=658/1+ 658\ (0.05)^2$

n= 249 managers

Further, the sample size of 249 managers was distributed in the main study and pilot study as shown in table 3.1 below. The percentage of the sample size for pilot study was 10% as recommended by Lowe (2019) and the remaining 90% was used in the main study.

Table 3.1: Distribution of the Sample Size

	% of Sample size	No of Managers
Main Study	90*249	224
Pilot study	10*249	25
TOTAL	**100**	**249**

Source: Researcher (2024)

3.6: Data Collection Methods

Data collection instruments are the tools used to collect information from the selected sample of the study (Bryman, 2017). They are utilized in collecting primary data and secondary data. Primary data refers to information obtained from first-hand sources and uses data collection instruments such as questionnaires, interviews, focus group discussions etc (Apuke, 2017). This study collected primary data and adopted a structured questionnaire that consisted of only closed-ended questions. The questionnaires were preferred over alternative methods because they offer a reasonably affordable, fast, and efficient way of gathering substantial amounts of data from a wide sample of the population (Rahi, 2017).

The questionnaire was divided into six main sections. The first section comprised of the background information of the managers. The second to fifth section comprised of questions regarding the independent variables; product innovations, market innovations, supply-chain innovations and financial innovations while the sixth sections entailed questions on growth of export business in horticultural firms in Kenya. The Likert scale which uses five markers (strongly agree, agree, moderately agree, disagree and strongly disagree) was used as the measure in the section 2-5 (Bryman, 2017).

During data collection, the researcher began by acquiring the necessary authorization letters from the university, the ethical approval letter and NACOSTI research permit to collect data from the selected participants. The management of the horticultural firms were briefed concerning the purpose of the study and consent sought from the selected 224 managers, so that their participation in filling the questionnaires were voluntarily and without coercion. The research assistants then helped the researcher in administering the questionnaires to the selected managers and picked at a

later date as agreed by the researcher and respondents. The researcher also did a follow-up on the selected participants through a phone call and respond to any inquiries from the targeted managers.

3.7: Research Quality

Before actual collection of data, a pilot study was conducted to enhance the research quality, validity and reliability of the research instruments. It is defined as a pre-test analysis that enables the researcher to assess their data collection instruments prior to undertaking the main study. The aim of conducting a pilot test was to assist the researcher to identify any errors, constraints, or other deficiencies in the questionnaires (Lowe, 2019). This involved testing the reliability and validity of the questionnaires. The sample of 25 respondents for pilot study was selected using simple random sampling and the researcher ensured not to include their responses when carrying out the actual study analysis.

3.7.1: Validity of Research Instruments

Validity is the extent to which a research instrument effectively depict the subject being investigated (Mohajan, 2017). It measures the accuracy and relevance of information derived from the questionnaires. The pilot study was used to improve both face and content validity (Cohen, Manion & Morrison, 2017). The researcher requested the assistance of the supervisors, who are experts in research, to examine the research items so as to increase the content validity of the study. The pilot study participants' and experts' suggestions were taken into consideration when developing and enhancing the data collection instrument's validity.

Further, the validity of the questionnaires was assessed by carrying out the Kaiser-Meyer-Olkin KMO-Bartlett’s test of sphericity in order to determine the validity of the individual variables. According to Shrestha (2021), KMO value closer to 1.0 are said to be the most preferable while values less than 0.5 are unsatisfactory.

Table 3.2: Validity Results of Research Instruments

Variable	KMO	Bartlett's Test of Sphericity			Conclusion Validity	
		Approx. Chi Square	df	Sig		
Product Innovations	0.510	57.365	36	0.000	Middling	Valid
Market Innovations	0.516	33.167	36	0.000	Middling	Valid
Supply-chain innovations	0.524	33.032	36	0.000	Middling	Valid
Financial Innovations	0.549	38.845	36	0.000	Middling	Valid
Growth of Export business	0.556	49.442	15	0.000	Middling	Valid

Source: Primary Data (2024)

The results in table 3.2 revealed that the KMO value for product innovations, market innovations, supply-chain innovations, financial innovations and growth of export business was greater than 0.5. Moreover, the Bartlett's test of sphericity was found to be significant for all variables. This implied that the study variables were suitable for further analysis.

3.7.2: Reliability of Research Instruments

Andrade (2018) defines reliability as the extent to which a research instrument yields consistent results when applied repeatedly. It guarantees consistency in measurement across time and among the various research items. According to Locharoenrat (2017), an adequate sample of a pilot test should consist of only 10% of the sample size. Therefore, in this study, the reliability of the questionnaire was tested using a sample of 25 respondents, which represents 10% of the total sample size 249 respondents. The 25 questionnaires were pre-tested and the data obtained was input in the Statistical Package of Social Sciences (SPSS) V27 and using the formula in equation 3.1 below, the Cronbach's alpha coefficient was generated. Chan and Idris (2017) advocates that a Cronbach alpha coefficient should be 0.70 or closer to 1 for a newly developed tool. Similarly, previous studies that have also employed the recommended cut-off include; (Taber, 2018; Jain & Angural, 2017 and Amirrudin et al., 2021). The recommended cut-off of the Cronbach's alpha coefficient of 0.7 to 1 was also used in this study. Taber (2018) also provided the following rules of thumb: >0.9 –Excellent, >0.8–Good, >0.7–Moderate, >0.6–Questionable, >0.5– Poor and <0.5 – Unacceptable.

The equation is as follows;

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}}$$

Where:

N = the number of items

c = average covariance between item-pair

v = average variance

Table 3.3 showed the reliability results of the items in the questionnaires per each study variable.

Table 3.3: Reliability Results of Research Instruments

Variable	Cronbach's Alpha	Number of items	Interpretation
Product Innovations	0.829	5	Good
Market Innovations	0.848	5	Good
Supply-chain Innovations	0.869	5	Good
Financial Innovations	0.825	5	Good
Growth of export business	0.893	5	Good

Source: Primary Data (2024)

The findings in table 3.3 disclosed that all the research variables had a Cronbach's alpha value greater than the recommended cutoff of 0.7. This shows that the questions met the reliability criteria ($\alpha>0.7$); suggesting that all the variables were reliable and suitable for further analysis.

3.8: Data Analysis and Presentation

The data collected through the questionnaires was first edited, categorized and coded in the MS Excel in readiness for analysis. The refined data was then input into the SPSS v27 which was used in generating the descriptive and inferential statistics. The SPSS was chosen for analysis because it can accommodate huge data, offers a wide range of statistical methods, and is very effective in analysis (Pallant, 2020). The descriptive statistics that were generated included; mean, standard deviation and percentages while the inferential statistics comprised of correlation analysis and multiple regression analysis (Judd, McClelland & Ryan, 2017). In correlation analysis, Pearson's correlation coefficient (r) was used to establish the strength of association between the independent variables (product innovations, market innovations, supply-chain innovations and financial innovations) and the dependent variable (growth of export business among horticultural

firms in Kenya). On the other hand, the multiple regression analysis was conducted to examine the relationship between innovations and growth of export business among horticultural firms in Kenya.

The study's regression model was of the following form;

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$……Equation 1

Where:

Y = Growth of export business

β_0 = the intercept

βi; i=1,2,3,4) = Regression coefficients values of X_{1-4}

X_1 = Product Innovations

X_2 = Market Innovations

X_3 = Supply-chain Innovations

X_4= Financial Innovations

ε = Error term

3.9: Diagnostic Tests

The study carried out four statistical tests, that is, the normality test, multicollinearity test, heteroscedasticity test and autocorrelation test so as to determine if there is any case of violation of the assumptions of the multiple regression model.

3.9.1: Normality Test

The normality test aims to ascertain the appropriate organization of a dataset with a normal distribution and evaluate how accurately the random variable influences the dataset to achieve effective and normal distribution (Khatun, 2021). In assessing normality, this research employed skewness and kurtosis statistics to evaluate the distribution of the variables under study. The researcher applied the rule of thumb, as recommended by Matore and Khairani (2020), which states that a variable is said to be normal if its skewness and kurtosis value are between -1 to 1. Furthermore, the significance of the variations from a normal distribution was assessed using Shapiro-Wilks (S-W) tests of normality. According to Hernandez (2021), if the test is not

significant (P>.05), it is concluded that the observed distribution is consequently normal because it is not different from the expected normal distribution.

3.9.2: Multicollinearity Test

According to Yeatts, Barton, Henson and Martin (2017), multicollinearity arises when there is a robust correlation between two or more independent variables within a regression model. In instances of pronounced collinearity, researchers face difficulties in isolating the unique impact of individual independent variables (predictors) on the dependent variable. It also increases the standard error, thereby influencing the regression coefficients' values and constraining the effectiveness of multiple correlations. To test for multicollinearity problem, the Variance Inflation Factor (VIF) analysis was used (Tay, 2017). Daoud (2017) indicates that a value of VIF that is less than 5 reflects moderate correlation, which is not significant enough to justify the multicollinearity problem or the need for a corrective measure. The value of 1 signifies no multicollinearity but if the value of the VIF is greater than 5 then this implies that there are high levels of multicollinearity.

3.9.3: Heteroscedasticity Test

Heteroscedasticity denotes the unequal variances of variables across various groups, resulting in varying accuracy levels of predicting the dependent variable across different levels of the independent variable (Astivia & Zumbo, 2019). In this research, the Breusch-Pagan test was employed via SPSS to calculate the p-value, aiming to examine heteroscedasticity within the linear regression model. This test assesses if the variance of errors in the regression model is associated with the values of the independent variables. If the test statistic has a p-value of less than 0.05 ($p < 0.05$) then the null hypothesis of homoscedasticity will be rejected and heteroscedasticity assumed (Zhou, Guo & Zhang, 2017).

3.9.4: Autocorrelation Test

King (2018) defines autocorrelation as the degree of association between the same variables over two subsequent time periods. It helps the researcher to determine the distribution of errors in the analysis. To test for presence or absence of auto-correlation, the study used the Durbin-Watson Test (Turner, 2020).

3.10: Ethical Considerations

The researcher ensured that the ethical standards regarding the data collection process was adhered to. This specifically included providing the necessary authorization permit letters from the university and the National Commission for Science, Technology and Innovation (NACOSTI) for data collection. The researcher sought consent from the targeted managers so as to ensure that their participation in filling the questionnaire is voluntarily. Privacy and confidentiality of information provided by the respondents was also enhanced by informing them not to indicate their names on the questionnaires. The participants were given assurance by the researcher that the data they contributed would be utilized exclusively for academic purposes. Participants retained the right to refuse or withdraw from the study at any point without facing adverse consequences. Additionally, the researcher took care to include references to the work of other researchers and appropriately cite them to prevent any instances of plagiarism. This research was made available to Strathmore Library which is a public institution and therefore can be accessed by anyone.

3.11 Chapter Summary

This chapter presented the research methods that were used in this study beginning with the research philosophy and research design which provided the overall plan and strategy that guided the researcher in conducting this study. It also outlined the target population, sample size and sampling technique, data collection methods, research quality, data analysis and presentation techniques, diagnostic tests and lastly ethical considerations.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presented the findings of the analyzed data which was collected through the questionnaires and their discussions. These findings comprised of the response rate, demographic information, descriptive statistics and inferential statistics.

4.2 Response Rate

The researcher administered 224 questionnaires to the selected sample of 224 managers. The results in table 4.1 showed that out of the 224 questionnaires administered 174 questionnaires were returned, representing a response rate of 77.7% while 50 questionnaires (22.3%) were not returned. As recommended by Mugenda and Mugenda (2003), a response rate of 70% and above in any data collection is said to be adequate for data analysis. This response rate also indicates a relatively high level of engagement from the surveyed population, suggesting that the study's findings are likely to be more representative and reliable. It also enhances the credibility and generalizability of the study findings (Fanning, 2019).

Table 4.1: Response Rate

Response Rate	Frequency	Percentage
Returned Questionnaires	174	77.7
Non-returned Questionnaires	50	22.3
Total	224	100

Source: Primary Data (2023)

4.4 Demographic Information

4.4.1 Gender

The respondents were asked to indicate their gender and the findings are as shown in table 4.2 and figure 4.1.

Table 4.2 Frequency distribution table for Gender

Gender	Frequency	Percentage (%)
Male	98	56.3
Female	76	43.7
Total	174	100

Source: Primary Data (2023)

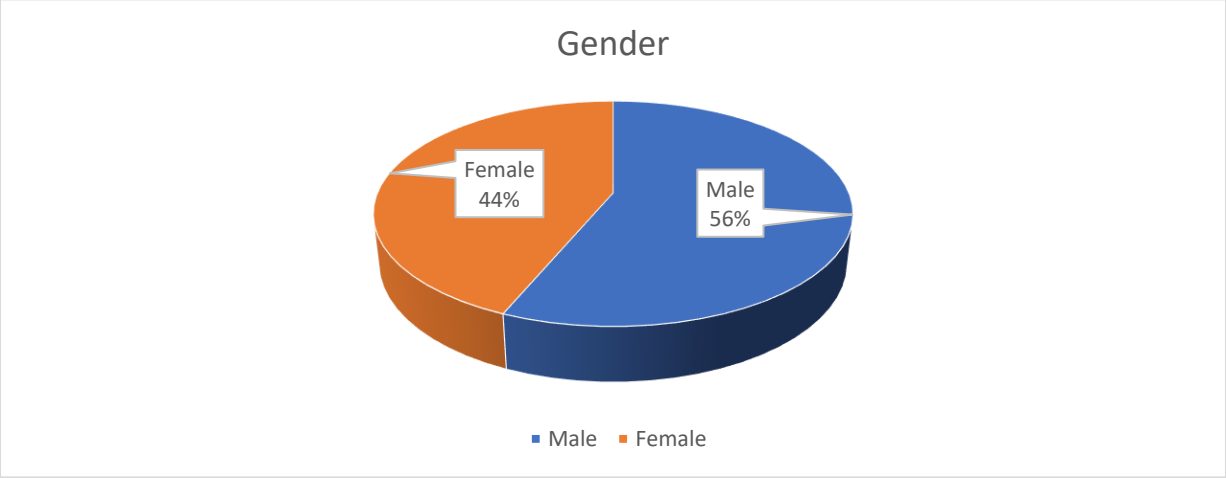


Figure 4.1: Gender

Source: Primary Data (2023)

The results outlined that 56% of the respondents were male and the remaining 44% were female. These results showed that the study was not gender biased and ensured to incorporate both the male and female managers in the horticultural firms in Kenya. It also infers that the targeted horticultural firms in Kenya are also sensitive to the implemented the two third gender rule by the government of Kenya. A study by Tonui (2017) also found that male respondents (62.7%) were more than female respondents (37.3%) in horticultural firms in Nakuru county. Thus, understanding how gender may influence perceptions, behaviors, or access to opportunities related to innovation and export activities becomes essential for ensuring the study's findings accurately reflect the diverse perspectives and experiences within the population. Addressing gender-specific factors in the analysis and interpretation of results can also provide insights into how innovation strategies and export growth initiatives can be more inclusive and equitable in fostering economic development in Kenya.

4.4.2 Job Position

The respondents were requested to state their job positions and their responses were outlined in table 4.3 and figure 4.2.

Table 4.3: Frequency distribution table for Job Position

Job Position	Frequency	Percentage
Senior level Manager	34	19
Middle level manager	59	34
Junior level manager	81	47
Total	174	100

Source: Primary Data (2023)

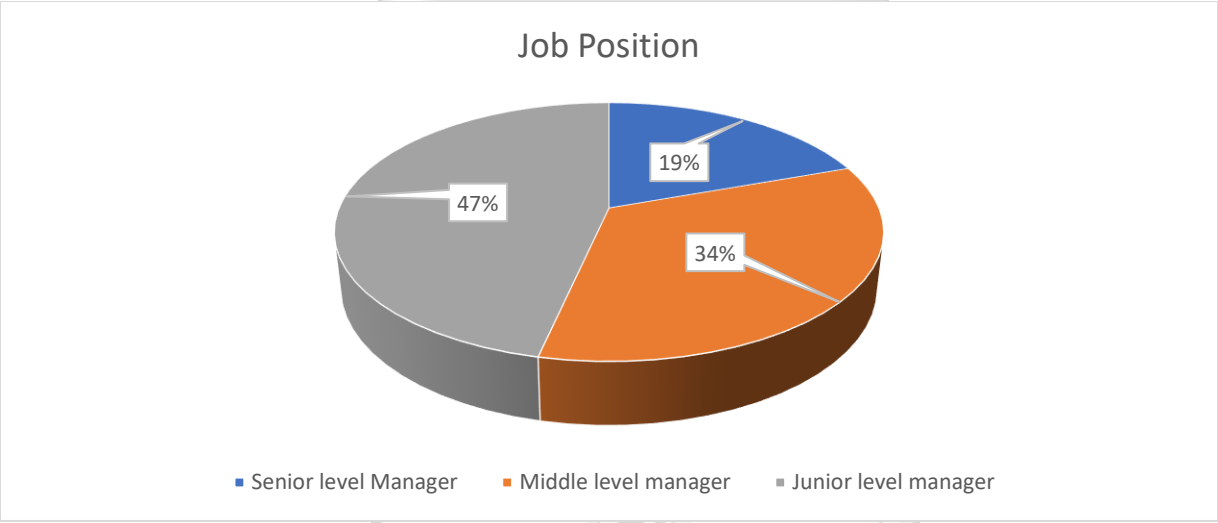


Figure 4.2: Job Position

Source: Primary Data (2023)

The findings revealed that 47% of the respondents were junior level managers, 34% were middle level managers while 19% were senior level managers. Similarly, Njuguna (2018) study discovered that 18.7% of the targeted employees in avocado firms in Kenya were senior managers, 33.3% were middle level managers and 48% were junior level managers. This indicates the varying levels of decision-making authority and influence within organizations. In addition, analyzing how each managerial group perceives and engages with innovation can inform targeted interventions to foster innovation adoption and drive export-led growth in Kenya.

4.4.3 Age Distribution

The study participants were also asked to indicate their age. The results were presented in table 4.4 and figure 4.3.

Table 4.4: Frequency distribution table for Age Distribution

Age Distribution	Frequency	Percentage
25-34 yrs	38	21.84
35-44 yrs	62	35.63
45-54 yrs	50	28.74
55 yrs and above	24	13.79
Total	174	100

Source: Primary Data (2023)

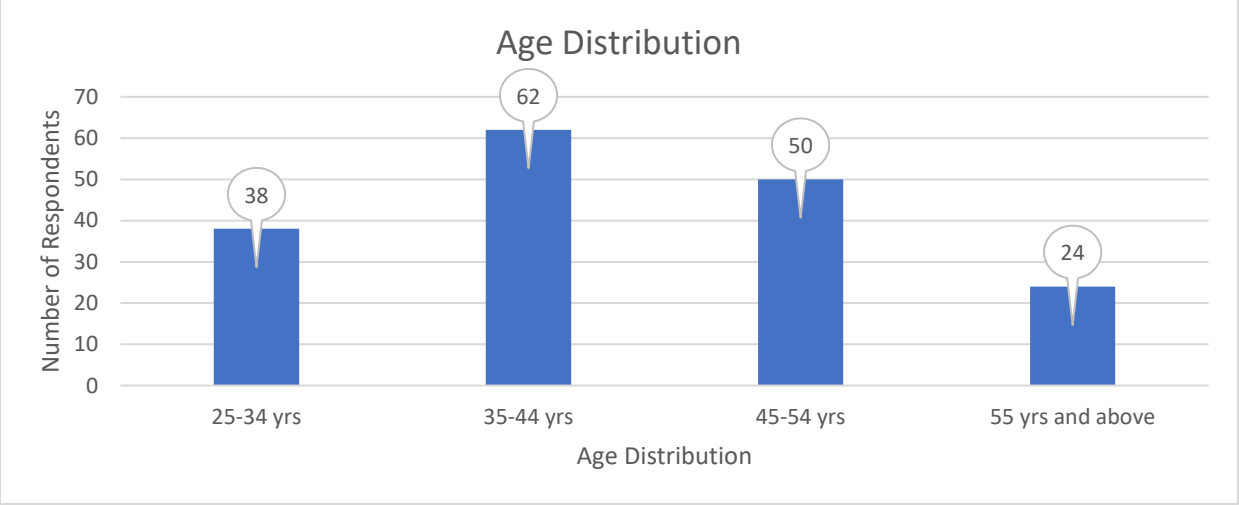


Figure 4.3: Age Distribution

Source: Primary Data (2023)

The results indicated that 35.6% (62) of the respondents were aged between 35-44 years, 28.7% (50) were aged between 45-54 years, 21.8% (38) were aged between 25-34 years and 13.8% had 55 years and above. This highlights potential differences in perspectives, experiences, and technological adaptability across age groups. Understanding how different age cohorts perceive and engage with innovation can provide insights into the potential barriers or facilitators to innovation adoption within the workforce. Analyzing age-related factors can also inform targeted

strategies to promote innovation uptake and drive export growth across diverse age groups in Kenya (Onyiego & Osoro, 2022).

4.4.4 Academic Qualifications

The study also sought to determine the academic qualifications of the respondents. The findings were as shown in table 4.5 and figure 4.4

Table 4.5: Frequency distribution table for Academic Qualifications

Academic Qualifications	Frequency	Percentage
Diploma	36	20.69
Bachelor's degree	69	39.66
Master's degree	42	24.14
Doctorate	27	15.52
Total	174	100

Source: Primary Data (2023)

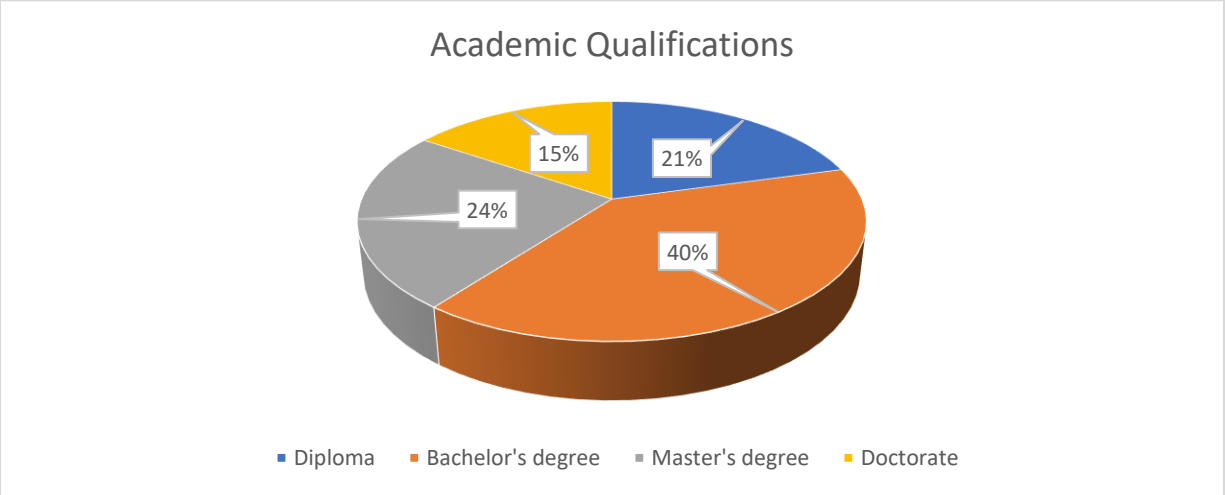


Figure 4.4: Academic Qualifications

Source: Primary Data (2023)

The findings highlighted that 40% of the respondents had attained a bachelor's degree, 24% had a master's degree, 21% had diplomas and the remaining 15% had doctorate (PhDs). This showed that majority of the respondents had attained high levels of education as required in the job qualifications of managers in horticultural firms in Kenya. The distribution across educational levels suggests a diverse pool of knowledge, expertise and skills, which can influence the adoption

and implementation of innovative practices in export-oriented businesses. Understanding the educational background of respondents can inform targeted training programs or capacity-building initiatives to support innovation-driven growth in Kenya's export sector (William, 2019).

4.4.5 Work Experience

The respondents were also requested to indicate their work experience in the horticultural sector. The results were as shown in table 4.6 and figure 4.5.

Table 4.6: Frequency distribution table for Work Experience

Work Experience5	Frequency	Percentage
1-5 yrs	35	20.11
6-10 yrs	53	30.46
11-15 yrs	41	23.56
16-20 yrs	26	14.94
Over 20yrs	19	10.92
Total	174	100.00

Source: Primary Data (2023)

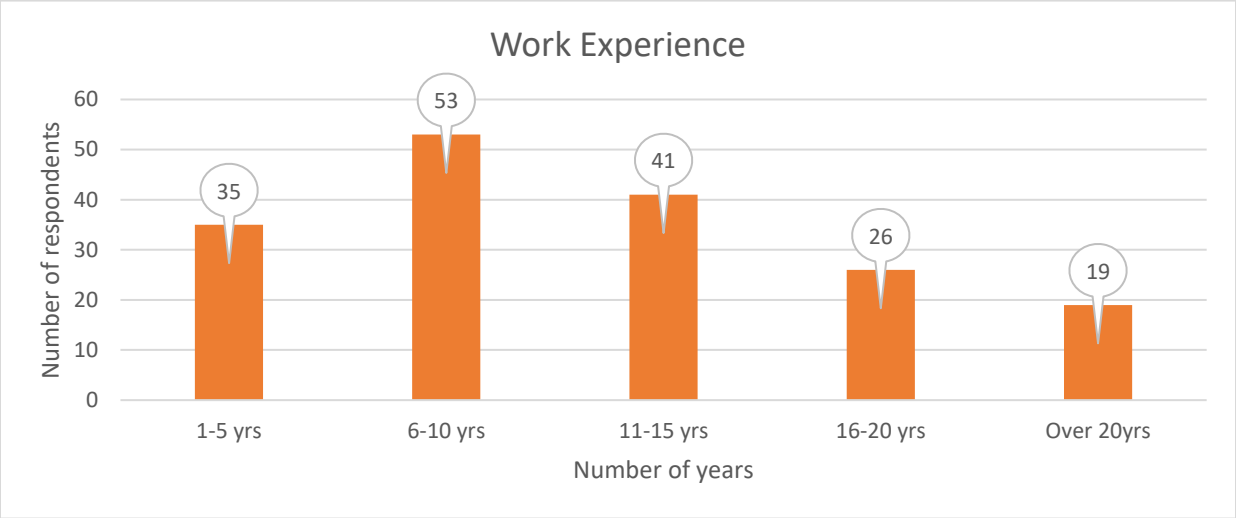


Figure 4.5: Work Experience

Source: Primary Data (2023)

The findings revealed that 30.5% (53) of the respondents had a work experience of 6-10 years, 23.6% (41) had worked for a period of 11-15 years, 20.1% (35) had worked for 1-5 years, 14.9%

(26) had worked for 16-20 years whereas, 10.9% (19) had worked for over 20 years. The distribution of respondents' work experience provides insights into the level of expertise and tenure within the workforce. Understanding the varying levels of experience can help identify potential barriers or enablers to innovation adoption, as individuals with longer tenures may bring institutional knowledge and resistance to change, while those with shorter tenures may possess fresh perspectives and adaptability. Analyzing the relationship between work experience and attitudes toward innovation can inform strategies to leverage diverse skill sets and knowledge backgrounds in fostering export-led growth in Kenya (Waithera, 2019).

4.5 Descriptive Statistics

The descriptive results were presented as per each study variable. To measure the indicators of the study variables, a five-point Likert scale was used: Where; 1-Strongly disagree, 2-Disagree, 3-Moderately disagree, 4-Agree and 5- Strongly agree.

4.5.1 Descriptive Results for Product Innovations

Respondents were asked to indicate their level of agreement with the following statement on product innovations influencing growth of export business among horticultural firms in Kenya. The results were presented in table 4.7.

Table 4.7: Descriptive Results for Product Innovations

Statements	Mean	Std Dev
The firm introduces new products or significantly improved products	3.71	1.07
The firm invests in product differentiation practices to improve the packaging of their products.	3.73	1.08
The staff of the firm are well-trained in employing the product differentiation practices.	3.76	1
The firm has adopted post-harvest technologies in their warehouses.	3.81	0.96
The firm has financially invested in purchasing modern post-harvest technologies.	3.91	0.93
The staff of the firm are well-trained in using the post-harvest technologies.	3.87	1
The firm uses greenhouse technologies in its daily operations.	3.91	0.93
The firm invests financially in equipping their greenhouses with new technologies.	3.82	0.88
The staff of the firm are well-trained in using the greenhouse technologies.	3.9	0.99
Overall Average	3.82	0.98

Source: Primary Data (2023)

The findings disclosed that the mean of responses on the first statement was 3.71 implying that majority of the respondents agreed that their horticultural firms introduces new products or significantly improved products and the standard deviation of 1.07 showed the variation of responses across the 5-point liker scale (strongly disagree, disagree, moderately agree, agree and strongly agree). The results also indicated that the mean of the responses on the second statement the firm invests in product differentiation practices to improve the packaging of their products was 3.73 meaning that most of the respondents agreed with this statement and their responses were varied as shown by the standard deviation of 1.08.

Moreover, the mean of these responses on the third statement was 3.76 supporting the fact that majority of the respondents agreed that the staff of the firm are well-trained in employing the product differentiation practices and their responses were varied as shown by the standard deviation of 1. The findings also highlighted that the mean of responses on the fourth statement was 3.81 meaning that most of the respondents agreed that the firm has adopted post-harvest technologies in their warehouses and the standard deviation of 0.96 explained the variation of the responses.

The results also outlined that the mean of responses for the fifth statement was 3.91 implying that the highest percentage of respondents agreed that the firm has financially invested in purchasing modern post-harvest technologies and these responses were varied as shown by the standard deviation of 0.93. Additionally, the results indicated that the mean of responses for the sixth statement was 3.87 supporting the fact that most of the respondents agreed that the staff of the firm are well-trained in using the post-harvest technologies and these responses were differentiated as shown by the standard deviation of 1.

The findings also revealed that the mean of responses for the seventh statement was 3.91 implying that majority of respondents agreed that the firm uses greenhouse technologies in its daily operations and the standard deviation of 0.93 explained the variations of these responses. The results also outlined that the mean of responses for the eighth statement was 3.82 meaning that the highest percentage of respondents agreed that the firm invests financially in equipping their greenhouses with new technologies and their responses were varied as shown by the standard deviations of 0.88.

In addition, the mean of responses for the ninth statement was 3.9 meaning that most of the respondents agreed that the staff of the firm are well-trained in using the greenhouse technologies and these responses were differentiated as shown by the standard deviation of 0.99. Furthermore, these findings were in agreement with those of Ayllón and Radicic (2019) and Avenyo, Konte and Mohnen (2019) which revealed that product innovations contribute to the improvement of workforce and management skills among staff members in export manufacturing firms.

4.5.2 Descriptive Results for Market Innovations

Respondents were asked to indicate their level of agreement with the following statement on market innovations influencing growth of export business among horticultural firms in Kenya. The results were presented in table 4.8.

Table 4.8: Descriptive Results for Market Innovations

Statements	Mean	Std Dev
The firm engages in online advertising to market its products to its customers.	3.47	1.23
The firm invest financially in advertising their products on the different online platforms.	3.65	1.21
The marketing staff are well-equipped in using the different online platform to advertise the firm's products.	3.7	1.03
The firm uses digital displays to market its products to its customers.	3.45	1.29
The firm invests financially in purchasing the digital displays required to market their products.	3.56	1.06
The marketing staff are well-equipped in using digital displays to advertise the firm's products.	3.58	1.25
The firm engages in joint ventures to access new emerging markets.	3.59	1.24
Joint ventures help the firm to increase its customer base.	3.67	1.14
Joint ventures have helped the firm acquire new skills and capabilities.	3.67	1.21
Overall Average	3.59	1.18

Source: Primary Data (2023)

The results in table 4.8 revealed that the mean of responses for the first statement on market innovation was 3.47 implying that most of the respondents agreed that the firm engages in online advertising to market its products to its customers and the standard deviation of 1.23 revealed the variation of responses across the 5-point liker scale (strongly disagree, disagree, moderately agree, agree and strongly agree).

The findings also noted that the mean of responses for the second statement was 3.65 meaning that majority of the respondents agreed that the firm invest financially in advertising their products on the different online platforms and these responses were varied as shown by the standard deviation of 1.21. The results also found that the average responses for the third statement was 3.7 implying that most of the respondents agreed that the marketing staff are well-equipped in using the different online platform to advertise the firm's products and their responses were varied as shown by the standard deviation of 1.03.

Moreover, the findings also indicated that the mean of responses for the fourth statement was 3.45 meaning that majority if the respondents agreed that the firm uses digital displays to market its products to its customers and the standard deviation of 1.29 explained the variation of the responses. The results also highlighted that the average responses for the fifth statement was 3.56 implying that most of the respondents agreed that the firm invests financially in purchasing the digital displays required to market their products and these responses were varied as shown by the standard deviation of 1.06.

The results also indicated that the mean of responses for the sixth statement was 3.58 supporting the fact that majority of respondents agreed that the marketing staff are well-equipped in using digital displays to advertise the firm's products and these responses were differentiated as shown by the standard deviation of 1.25. In addition, the findings also revealed that the average responses for the seventh statement was 3.59 implying that most of the respondents agreed that the firm engages in joint ventures to access new emerging markets and the standard deviation of 1.24 explained the variations of these responses.

The results also outlined that the mean of responses for the eighth statement was 3.67 meaning that the highest percentage of the respondents agreed that joint ventures help the firm to increase its customer base and their responses were varied as shown by the standard deviations of 1.14. Additionally, the findings indicated that the average responses for the ninth statement was 3.67 implying that majority of the respondents agreed that joint ventures have helped the firm acquire new skills and capabilities and these responses were differentiated as shown by the standard deviation of 1.21.

Further, Xie and Li (2018) study also concurred with these results as it outlined that implementing market innovations such as Research & Development (R&D) has enabled exporters to identify better market intermediaries in their domestic market and increase their customer base. Onyango (2016) research also revealed that digital displays, websites and online advertising are among the marketing innovative strategies that have led to improvement in marketing communication and products promotion.

4.5.3 Descriptive Results for Supply-chain Innovations

Respondents were requested to indicate their level of agreement with the following statement on supply-chain innovations influencing growth of export business among horticultural firms in Kenya. Table 4.9 presented the findings obtained.

Table 4.9: Descriptive Results for Supply-chain Innovations

Statements	Mean	Std Dev
The firm uses logistic software in its supply-chain practices.	3.45	1.2
The firm invests financially in acquiring updated logistic software.	3.53	1.18
The firm invests in training their staff to use logistic software.	3.45	1.25
The firm uses autonomous warehouse robots in its supply-chain practices.	3.43	1.16
The firm invests financially in acquiring updated autonomous warehouse robots.	3.41	1.25
The firm invests in training its staff to use autonomous warehouse robots.	3.48	1.2
The firm utilizes E-commerce in its supply-chain practices.	3.45	1.21
The firm invests financially in acquiring the necessary electronic devices used in E-commerce.	3.53	1.19
The firm invests in training its staff on the use of the different E-commerce platforms.	3.62	1.21
Overall Average	3.48	1.21

Source: Primary Data (2023)

According to the findings in table 4.9, the mean of responses for the first statement on supply-chain innovations was 3.45 supporting the fact that the highest percentage of respondents agreed that the firm uses logistic software in its supply-chain practices and the standard deviation of 1.2 demonstrated the variation of responses across the 5-point liker scale (strongly disagree, disagree, moderately agree, agree and strongly agree). The results also revealed that the average responses for the second statement was 3.53 meaning that most of the respondents agreed that the firm invests

financially in acquiring updated logistic software and these responses were varied as shown by the standard deviation of 1.18.

The findings also indicated that the mean of responses for the third statement was 3.45 implying that majority of the respondents agreed that the firm invests in training their staff to use logistic software and their responses were varied as shown by the standard deviation of 1.25. The results also found that the average responses for the fourth statement was 3.43 supporting the fact that the highest percentage of respondents agreed that the firm uses autonomous warehouse robots in its supply-chain practices and the standard deviation of 1.16 explained the variation of the responses.

The findings also highlighted that the mean of responses for the fifth statement was 3.41 meaning that most of the respondents agreed that the firm invests financially in acquiring updated autonomous warehouse robots and these responses were varied as shown by the standard deviation of 1.24. In addition, the results also revealed that the average responses for the sixth statement was 3.48 implying that majority of the respondents agreed that the firm invests in training its staff to use autonomous warehouse robots and these responses were differentiated as shown by the standard deviation of 1.2.

The findings also indicated that the mean of responses for the seventh statement was 3.45 meaning that most of the respondents agreed that the firm utilizes E-commerce in its supply-chain practices and the standard deviation of 1.21 explained the variations of these responses. In addition, the results also outlined that the average responses for the eighth statement was 3.53 implying that majority of the respondents agreed that the firm invests financially in acquiring the necessary electronic devices used in E-commerce and their responses were varied as shown by the standard deviations of 1.19. Additionally, the results also found that the mean of responses for the ninth statement was 3.62 supporting the fact that the highest percentage of respondents agreed that the firm invests in training its staff on the use of the different E-commerce platforms and these responses were differentiated as shown by the standard deviation of 1.21.

Similarly, Moran (2018) study corroborates these findings as it outlined that adoption of advanced technologies in logistics and inventory enhances flow of both farm inputs and exports, information, and resources across the supply-chain network. Wang et al (2018) research also revealed that

investing in cross-border e-commerce for export markets has facilitated fast and effective flow of goods between exporters and international markets.

4.5.4: Descriptive Results for Financial Innovations

Respondents were also requested to indicate their level of agreement with the following statement on financial innovations influencing growth of export business among horticultural firms in Kenya. Table 4.10 presented the findings obtained.

Table 4.10: Descriptive Results for Financial Innovations

Statements	Mean	Std Dev
The firm uses mobile banking as a preferred mode of business transactions.	3.53	1.25
The firm invests financially in purchasing the electronic devices that are used in mobile banking.	3.73	1.08
The firm invests in training its staff on the use of the electronic devices utilized in mobile banking.	3.63	1.2
The firm uses electronic transfers as a preferred mode of business transactions.	3.82	1.06
The firm invests financially in purchasing the electronic devices that are used in electronic transfers.	3.61	1.18
The firm invests in training its staff on the use of the electronic devices utilized in electronic transfers.	3.83	1.06
The firm has integrated it's platform with its banker's system for effecting day to day transactions from the comfort of its offices.	3.7	1.17
The firm has invested in stable internet connection to support mobile and electronic bank transactions.	3.71	1.16
The firm in collaboration with its bankers invest in training its staff on the use of the electronic devices utilized in internet banking.	3.82	1.07
Overall Average	3.71	1.14

Source: Primary Data (2023)

The results in table 4.10 showed that the average responses for the first statement on financial innovations was 3.53 implying that most of the respondents agreed that the firm uses mobile banking as a preferred mode of business transactions and the standard deviation of 1.25 showed the variations of these responses across the 5-point liker scale (strongly disagree, disagree, moderately agree, agree and strongly agree). The findings also highlighted that the mean of responses for the second statement was 3.73 meaning that the highest percentage of respondents agreed that the firm invests financially in purchasing the electronic devices that are used in mobile banking and the responses were varied as shown by standard deviation of 1.08.

The results also indicated that the average responses for the third statement was 3.63 implying that majority of the respondents agreed that the firm invests in training its staff on the use of the electronic devices utilized in mobile banking and their responses were differentiated as shown by the standard deviation of 1.2. The findings also outlined that the mean of responses for the fourth statement was 3.82 supporting the fact that the highest percentage of respondents agreed that the firm uses electronic transfers as a preferred mode of business transactions and the standard deviation of 1.06 explained the variation of the responses.

Moreover, the results also revealed that the average responses for the fifth statement was 3.61 meaning that most of the respondents agreed that the firm invests financially in purchasing the electronic devices that are used in electronic transfers and these responses were varied as shown by the standard deviation of 1.18. The findings also indicated that the mean of responses for the sixth statement was 3.83 implying that the largest percentage of respondents agreed that the firm invests in training its staff on the use of the electronic devices utilized in electronic transfers and these responses were differentiated as shown by the standard deviation of 1.06.

The results also found that the average responses for the seventh statement was 3.7 meaning that most of the respondents agreed that the firm has integrated it's platform with its banker's system for effecting day to day transactions from the comfort of its offices and the standard deviation of 1.17 explained the variations of these responses. In addition, the findings also outlined that the mean of responses for the eighth statement was 3.71 implying that majority of the respondents agreed that the firm has invested in stable internet connection to support mobile and electronic bank transactions and these responses were varied as shown by the standard deviations of 1.16.

Additionally, the average responses for the ninth statement was 3.82 supporting the fact that the highest percentage of respondents agreed that the firm in collaboration with its bankers invest in training its staff on the use of the electronic devices utilized in internet banking and these responses were differentiated as shown by the standard deviation of 1.07. Further, these findings were in agreement with Tonui (2017) study as it highlighted that liquidity, credit access, working capital, and good cashflow management are essential financial factors that contribute to growth of horticultural firms in Nakuru county.

4.5.4: Descriptive Results for Growth of Export Business

Respondents were also requested to indicate their level of agreement with the following statement on growth of export business among horticultural firms in Kenya. Table 4.11 presented the findings obtained.

Table 4.11: Descriptive Results for Growth of Export Business

Statements	Mean	Std Dev
The total export volume has been on an increasing trend for the last five years.	3.62	1.1
The total export volume has been exceeding the annual firm's target for the last five years.	3.78	1.02
The highest percentage of total export volume has been contributed by innovations in the firm.	3.75	1.07
The market access of the firm has been on an increasing trend for the last five years.	3.73	1.05
The market access of the firm has been exceeding the annual firm's target for the last five years.	3.86	1
The percentage increase in market access has been influenced by innovations in the firm.	3.7	0.99
Product development in the firm has been on an increasing trend for the last five years.	3.78	0.96
Product development in the firm has been exceeding the annual firm's target for the last five years.	3.9	0.97
The highest percentage of product development has been contributed by innovations in the firm.	3.88	0.94
Overall Average	3.78	1.01

Source: Primary Data (2023)

The results in table 4.11 revealed that the mean of responses for the first statement on growth of export business was 3.62 implying that majority of respondents agreed that the total export volume has been on an increasing trend for the last five years and the standard deviation of 1.1 showed the variations of these responses across the 5-point liker scale (strongly disagree, disagree, moderately agree, agree and strongly agree). The findings also indicated that the average responses for the second statement was 3.78 meaning that most of the respondents agreed that the total export volume has been exceeding the annual firm's target for the last five years and the responses were differentiated as shown by standard deviation of 1.02.

The results also showed that the mean of responses for the third statement was 3.75 supporting the fact that majority of respondents agreed that the highest percentage of total export volume has been

contributed by innovations in the firm and the standard deviation of 1.07 explained the variations of responses. In addition, the findings also highlighted that the average responses for the fourth statement was 3.73 implying that most of the respondents agreed that the market access of the firm has been on an increasing trend for the last five years and these responses were varied as shown by the standard deviation of 1.05.

The results also revealed that the mean of responses for the fifth statement was 3.86 supporting the fact that the highest percentage of respondents agreed that market access of the firm has been exceeding the annual firm's target for the last five years and these responses were varied as shown by the standard deviation of 1. The findings also indicated that the average responses for the sixth statement was 3.7 implying that most of the respondents agreed that the percentage increase in market access has been influenced by innovations in the firm and these responses were differentiated as shown by the standard deviation of 0.99.

Moreover, the results also highlighted that the mean of responses for the seventh statement was 3.78 meaning that majority of respondents agreed that product development in the firm has been on an increasing trend for the last five years and the standard deviation of 0.96 explained the variations of these responses. The findings also outlined that the average responses for the eighth statement was 3.9 revealing that the highest percentage of respondents agreed that product development in the firm has been exceeding the annual firm's target for the last five years and their responses were varied as shown by the standard deviations of 0.97. Additionally, the results also found that the mean of responses for the ninth statement was 3.88 meaning that most of the respondents agreed that the highest percentage of product development has been contributed by innovations in the firm and these responses were differentiated as shown by the standard deviation of 0.94.

Consequently, the study by Mukundi (2019) also concurs that exporters who are investing in innovative horticultural practices are able to penetrate new markets, increase export volumes, and achieve higher revenues. Park and Gachukia (2021) study also highlighted that innovative systems for inclusive upgrading of the supply value chain have benefited from streamlined communication with their international customers and meeting the quality requirements in the international markets.

4.6 Diagnostic Tests

4.6.1 Normality Test

The study used the Shapiro Wilk Test to test for normality. The null-hypothesis for this test was that the research data is normally distributed. The findings in table 4.12 showed that the p-value for all the study variables was greater than the chosen alpha level (0.05), hence the research fails to reject the null hypothesis and it was concluded that there is evidence that the data analyzed was a normally distributed.

Table 4.12: Normality Test

Variables	Shapiro-Wilk		
	Statistic	Df	Sig.
Product Innovations	.977	174	.105
Market Innovations	.975	174	.076
Supply-chain Innovations	.960	174	.121
Financial Innovations	.940	174	.125
Growth of export business	.980	174	.0118

Source: Primary Data (2023)

4.6.2 Multicollinearity Test

The Variance Inflation Factor (VIF) was utilized to determine if there is presence of multicollinearity in the research data. Multicollinearity exists if Tolerance values are below 0.2 and VIF values are more than 5 (Tay, 2017). The results in table 4.13 indicated that Tolerance values for all study variables were above 0.2 and VIF values were less than 5, thus it was concluded that there was no multicollinearity problem in the study and hence acceptable for analysis.

Table 4.13: Multicollinearity Test

Model		Collinearity Statistics	
	Variables	Tolerance	VIF
1	(Constant)		
	Product Innovation	0.518	1.932
	Market Innovations	0.461	2.172
	Supply-chain Innovations	0.633	1.580
	Financial Innovations	0.367	2.726

Source: Primary Data (2023)

4.6.3 Heteroscedasticity Test

The study used the Breuch-pagan test to determine if there is presence of heteroscedasticity in the study variables. According to Zhou, Guo and Zhang (2017), homoscedasticity which implies absence of heteroscedasticity would be evident when the p-value is greater than 0.05. The results in table 4.14 revealed that the p-value was 0.494 which was greater than 0.05. Hence, this implied that there is absence of heteroscedasticity in the research data.

Table 4.14: Heteroscedasticity Test

Ho: Constant variance			
Statistics	Df	Stat value	p-value
Chi-squared	173	0.853	0.494

Source: Primary Data (2023)

4.6.4 Autocorrelation Test

The study used the Durbin-Watson test to assess presence of autocorrelation. The null hypothesis for the Durbin-Watson's tests is that the residuals are not linearly autocorrelated. Turner (2020) outlined that if the d values are; $1.5 < d < 2.5$ it implies absence of autocorrelation in the data. The findings in table 4.15 revealed that the d value was 1.923 and this value was within the recommended range, this meant that there was no presence of autocorrelation in the research data.

Table 4.15: Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.669a	0.448	0.435	0.2332	1.923

Source: Primary Data (2023)

4.7 Inferential Statistics

The inferential statistics generated comprised of the correlation and regression analysis results which were used to test the relationship between the dependent and the independent variables.

4.7.1 Correlation Results

The Pearson correlation (R) was employed to measure strength and the direction of linear relationship between the variables. The findings are as shown in table 4.16.

Table 4.16: Correlation Results

Variables		Av_ Product Innovations	Av_ Market Innovations	Av_ supply-chain innovations	Av_ financial innovations	Av_ Growth of export business
Av_ Product Innovations	Pearson Correlation	1	.567**	.432**	.683**	.561**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000
Av_ Market Innovations	Pearson Correlation	.567**	1	.555**	.700**	.573**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000
Av_ Supply-chain innovations	Pearson Correlation	.432**	.555**	1	.561**	.366**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000
Av_ Financial innovations	Pearson Correlation	.683**	.700**	.561**	1	.620**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000
Av_ Growth of export business	Pearson Correlation	.561**	.573**	.366**	.620**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	

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

Source: Primary Data (2023)

The correlation results showed that product innovations had a strong positive and significant relationship with growth of export business (r=0.561, p=0.000). Moreover, the study by Jusufi, Ukaj and Ajdarpasic (2020) corroborates with these results as it also discovered that the type of product innovation had a strong positive relationship with export growth of manufacturing firms. Kaluyu and Muriuki (2021) study also concurred with these results as it highlighted that production technology innovations had a positive association with business success of fresh produce exporters in Kenya.

The findings also indicated that market innovations and growth of export business were also positively and significantly correlated (r=0.573, p=0.000). Similarly, Njuguna (2018) research also agreed that marketing innovation strategies had a positive and significant association with export performance of avocado firms in Kenya. Another study by Amare et al (2019) also found that participation of smallholder farmers in innovative marketing strategies had a positive relationship with farm yields, sales price of Has type avocados and total revenues.

Moreover, supply-chain innovations were also found to have a moderate positive and significant association with growth of export business (r=0.366, p=0.000). Kariuki, Ngugi and Mburu (2022) study also concurred with these findings as it concluded that reverse logistics innovations and performance of horticultural firms were positively and significantly correlated. On the other hand, Onyiego and Osoro (2022) study also revealed that strategic value chain management practices had a positive relationship with performance of floriculture exporting firms in Nakuru county, Kenya.

The results also outlined that financial innovations had a strong positive and significant relationship with growth of export business (r=0.620, p=0.000). Ngugi and Wamalwa (2018) study also concurred with these results as it disclosed that financial innovation had a positive and significant relationship with export performance. In addition, Tonui (2017) study also found that financial factors such as credit access and cashflow management had a positive association with growth of horticultural firms in Nakuru county, Kenya

4.7.2 Regression Results for Product Innovations and Growth of Export Business

The first objective of the study was to establish the influence of product innovation on the growth of export business among horticultural firms in Kenya. The linear regression analysis determined the predictive power of product innovations on growth of export business and the statistical significance of model. The findings comprised of the model fitness, analysis of variance and regression coefficients.

Table 4.17: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.561a	0.314	0.31	0.25766

a Predictors: (Constant), Av_ Product Innovations

Source: Primary Data (2023)

The results of the model fitness showed that the coefficient of determination (R-square) was 0.314. This revealed that product innovations explained 31.4% of the variations in growth of export business. It also meant that product innovations were a key determinant of growth of export business in horticultural firms in Kenya.

Table 4.18: Analysis of Variance (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.234	1	5.234	78.843	.000b
	Residual	11.419	172	0.066		
	Total	16.654	173			

Source: Primary Data (2023)

The ANOVA results highlighted that the calculated F statistic of 78.843 was greater than the f-critical value 3.896 obtained, and the reported p-value of (0.000) was less than 0.05 significance level. This demonstrated that the overall model of regression was statistically significant and product innovations was found to be a good predictor of growth of export business.

Table 4.19: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.465	0.149		16.551	0.000
	Av_ Product Innovations	0.343	0.039	0.561	8.879	0.000

a Dependent Variable: Av_ Growth of export business

Source: Primary Data (2023)

The regression coefficients result also revealed that the Beta coefficient for product innovations was (β=0.343) and the reported p=0.000. This implied that product innovations had a positive and significant influence on growth of export business. It also meant that a unit increase in product innovations will lead to an increase in growth of export business by 0.343 units. Additionally, Kamau and Ndung'u (2017) study also concurs with these results as it disclosed that product innovation positively influenced export revenue growth. Another research by Muthoni and

Wanjiru (2020) also agreed with these results as it outlined that product innovation strategies positive impact on the growth of export business in the Kenyan horticultural sector.

4.7.3 Regression Results for Market Innovations and Growth of Export Business

The second objective of the study was to determine the influence of market innovations on the growth of export business among horticultural firms in Kenya. The linear regression analysis determined the predictive power of market innovations on growth of export business and the statistical significance of model. The results consisted of the model fitness, analysis of variance and regression coefficients.

Table 4.20: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.573a	0.328	0.324	0.25511

a Predictors: (Constant), Av_ Market Innovations

Source: Primary Data (2023)

The model fitness findings outlined that the R-square was 0.328. This showed that market innovations explained 32.8% of the changes in growth of export business. It also implied that market innovations were a key indicator of growth of export business in horticultural firms in Kenya.

Table 4.21: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.46	1	5.46	83.893	.000b
	Residual	11.194	172	0.065		
	Total	16.654	173			

Source: Primary Data (2023)

The ANOVA results found that the calculated F statistic of 83.893 was greater than the f-critical value 3.896 and the reported p-value of (0.000) was less than 0.05 significance level. This revealed that the overall model of regression was statistically significant and market innovations was found to be a good predictor of growth of export business.

Table 4.22: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.854	0.103		27.831	0.000
	Av_ Market Innovations	0.257	0.028	0.573	9.159	0.000

a Dependent Variable: Av_ Growth of export business

Source: Primary Data (2023)

The regression coefficients findings also indicated that the Beta coefficient for market innovations was (β=0.257) and the reported p=0.000. This implied that market innovations had a positive and significant influence on growth of export business. It also showed that a unit increase in market innovations will lead to an increase in growth of export business by 0.257 units.

The study by Waithera (2019) also concurred with these findings as it disclosed that innovative market entry strategies had a positive impact on growth of horticulture firms in Kenya. Njuguna (2018) research also established that marketing mix strategies had a positive and significant effect on export performance of avocado firms in Kenya. However, Silva, Styles and Lages (2017) study disagreed with these results as it concluded that market innovations had a negative and significant effect on strategic export performance

4.7.4 Regression Results for Supply-chain Innovations and Growth of Export Business

The third objective of the study was to examine the influence of supply-chain innovations on the growth of export business among horticultural firms in Kenya. The linear regression analysis determined the predictive power of supply-chain innovations on growth of export business and the statistical significance of model. The results consisted of the model fitness, analysis of variance and regression coefficients.

Table 4.23: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.366a	0.134	0.129	0.28961

a Predictors: (Constant), Av_ supply-chain innovations

Source: Primary Data (2023)

The model fitness findings revealed that the R-square was 0134. This indicated that supply-chain innovations explained 13.4% of the changes in growth of export business. It also showed that supply-chain innovations were a key indicator of growth of export business in horticultural firms in Kenya.

Table 4.24: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.228	1	2.228	26.563	.000b
	Residual	14.426	172	0.084		
	Total	16.654	173			

Source: Primary Data (2023)

The ANOVA findings outlined that the calculated F statistic was 26.563 which was greater than the f-critical value 3.896 and the reported p-value of (0.000) was less than 0.05 significance level. This disclosed that the overall model of regression was statistically significant and supply-chain innovations was found to be a good predictor of growth of export business.

Table 4.25: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.139	0.125		25.027	0.000
	Av_ supply-chain innovations	0.183	0.035	0.366	5.154	0.000

a Dependent Variable: Av_ Growth of export business

Source: Primary Data (2023)

The regression coefficients findings also indicated that the Beta coefficient for supply-chain innovations was (β=0.183) and the reported p=0.000. This implied that supply-chain innovations had a positive and significant influence on growth of export business. It also meant that a unit improvement in supply-chain innovations will lead to an improvement in growth of export business by 0.183 units. Moreover, Khalil, Khalil and Khan (2019) study corroborate these results since in concluded that innovative supply-chain management practices had a positive and significant impact on organization performance in Punjab firms. Poulsen and Kirori (2017) study

also outlined that supply-chain innovations had a positive and significant effect on performance of horticultural firms in Kenya,

4.7.5 Regression Results for Financial Innovations and Growth of Export Business

The fourth objective of the study was to establish the influence of financial innovations on the growth of export business among horticultural firms in Kenya. The linear regression analysis determined the predictive power of financial innovations on growth of export business and the statistical significance of model. The results entailed the model fitness, analysis of variance and regression coefficients.

Table 4.26: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.620a	0.384	0.381	0.24417

a Predictors: (Constant), Av_ financial innovations

Source: Primary Data (2023)

The model fitness results disclosed that the R-square was 0.384. This revealed that financial innovations explained 38.4% of the variations in growth of export business. It also showed that financial innovations were a key determinant of growth of export business in horticultural firms in Kenya.

Table 4.27: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.399	1	6.399	107.327	.000b
	Residual	10.255	172	0.06		
	Total	16.654	173			

Source: Primary Data (2023)

The ANOVA results highlighted that the calculated F statistic was 107.327 which was greater than the f-critical value 3.896 and the reported p-value of (0.000) was less than 0.05 significance level. This indicated that the overall model of regression was statistically significant and financial innovations was found to be a good predictor of growth of export business.

Table 4.28: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.78	0.098		28.408	0.000
	Av_ financial innovations	0.268	0.026	0.62	10.36	0.000

a Dependent Variable: Av_ Growth of export business

Source: Primary Data (2023)

The regression coefficients results also indicated that the Beta coefficient for financial innovations was (β=0.268) and the reported p=0.000. This meant that financial innovations had a positive and significant influence on growth of export business. It also implied that a unit improvement in financial innovations will lead to an improvement in growth of export business by 0.268 units. Additionally, Ngugi and Wamalwa (2018) study also concurred with these results as it established that financial risk management innovation had a positive and significant effect on export performance in horticultural sector in Kenya. Tonui (2017) study also revealed that liquidity management had a positive impact on growth of horticultural firms in Nakuru county.

4.7.6: Overall Regression Results for Innovations and Growth of Export Business

The overall regression model results were conducted to determine the overall contribution of innovations on growth of export business, the intercept and statistical significance of the overall model.

Table 4.29: Overall Regression Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.639a	0.409	0.405	0.23928		
		Sum of Squares	df	Mean Square	F	Sig.
	Regression	6.806	1	6.806	118.865	.000b
	Residual	9.848	172	0.057		
	Total	16.654	173			
		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.406	0.127		18.946	0.000

Av_ Innovations	0.375	0.034	0.639	10.903	0.000

a Dependent Variable: Av_ Growth of export business
b Predictors: (Constant), Av_ Innovations

Source: Primary Data (2023)

According to the results in table 4.29, the overall regression model was found to be statistically significant as shown by the calculated F statistic was 118.865 which was greater than the f-critical value 3.896 and the reported p-value of (0.000) was less than 0.05 significance level. In addition, the R-square of 0.409 revealed that in general the examined innovations explained 40.9% of the variations in growth of export business. It can also be concluded that innovations are key determinants of growth of export business in horticultural firms in Kenya. The findings also outlined that the (β_0) of the overall regression model was 2.406 and Beta coefficient for innovations was (β=0.375) and the reported p=0.000. This meant that innovations had a positive and significant influence on growth of export business. It also implied that a unit improvement in innovations will lead to an improvement in growth of export business by 0.375 units.

Therefore, the overall regression model was presented as follows;

Growth of export business= 2.406 + 0.343 Product innovations + 0.257 Market innovations + 0.183 Supply-chain innovations + 0.268 Financial innovations + Ɛ

4.8 Chapter Summary

This chapter presented the research findings obtained from the 174 returned questionnaires. The findings encompassed the response rate, demographic information, descriptive statistics, diagnostic test results, correlation and regression analysis results.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter covered the summary of major findings drawn from the study, conclusions and recommendations arrived at by the researcher. The summary of findings and conclusions were presented in themes related to the research objectives. The chapter also presented suggestions for further studies.

5.2 Summary of Findings

The study aimed to examine the influence of innovations on the growth of export business among horticultural firms in Kenya. The various innovations assessed include product innovations, market innovations, supply-chain innovations and financial innovations. The research utilized a cross-sectional descriptive survey design where the targeted population comprised of 658 horticultural firms in Kenya registered under the Agriculture and Food Authority by 2020. Out of a sample size of 249 managers who were given structured questionnaires to respond to, the study recorded a response rate of 77.7% where 174 questionnaires were returned. The research also carried out a pilot test to assess the validity and reliability of the research instruments and according to the findings all the variables had a Cronbach Alpha greater than 0.80 and KMO value that is greater than 0.5 meaning that the statements on the questionnaires were valid and reliable to provide accurate data that the researcher can draw findings, conclusion and recommendations from.

Moreover, the demographic information of the respondents revealed that male respondents (56%) were more than the female respondents (44%) but this also implied that the study was not gender biased and ensured to incorporate both the male and female managers in the horticultural firms in Kenya. The results also showed that junior level managers (47%) were more than the middle level managers (34%) and senior managers (19%). In addition, majority of the respondents were aged between 35-44 years (35.6%), 45-54 years (28.7%), 25-34 years (21.8%) and with few participants with 55 years and above (13.8%). Additionally, the study also found that most of the respondents had higher levels of academic qualifications where 15% had PhDs, 24% had master's degree, 40% had bachelor's degree and 21% had diplomas.

Furthermore, the results also established that majority of the respondents were relatively well-experienced in the horticultural sector, where 30.5% of them had 6-10 years' work experience, 23.6% with 11-15 years' work experience, 20.1% with 1-5 years' work experience, 14.9% with 16-20 years' work experience whereas, 10.9% had worked for over 20 years. On the other hand, the descriptive results showed that most of the participants recorded positive responses, where more than 50% of them agreed with the statements on the different practices regarding product innovations, market innovations, supply-chain innovations, financial innovations and growth of export business in horticultural firms. The diagnostic tests conducted including normality test, multicollinearity test, heteroscedasticity test and autocorrelation test also confirmed that the data analyzed did not violate the assumptions of multiple linear regression model. Thus, this gave a go ahead to conduct the correlation and regression analysis.

5.3 Discussion

5.3.1 Product Innovations and Growth of Export Business

The study sought to establish the influence of product innovations on the growth of export business among horticultural firms in Kenya. The descriptive results on product innovations disclosed that majority of the respondents of above 70% agreed that their firms introduce new products or significantly improved products, invest in product differentiation practices, post-harvest technologies and greenhouse technologies. They also agreed that their firms invest financially in purchasing modern post-harvest technologies and equipping their greenhouses with new technologies. They also agreed that the firm's staff are well-trained in employing product differentiation practices, using the post-harvest technologies and greenhouse technologies. The overall average of responses of 3.82 also showed that product innovations are among the innovation practices that are highly esteemed in horticultural firms in Kenya.

In addition, these results concurred with those of Ayllon and Radicic (2019) which indicated that successful product and process innovations can be sustained by a combination of both the internal development and external acquisitions including purchase of machinery and equipment. They were also in agreement with the findings from Kamau and Ndung'u (2017) research which indicated that introduction of innovative products in firms enabled them to enter new markets and penetrate existing markets more effectively. Additionally, these results also corroborate Muthoni and

Wanjiru (2020) study findings which revealed that exporters who introduced innovative products were able to increase export volumes, and achieve higher revenues.

Moreover, the correlation results also indicated that product innovations had a positive and significant relationship with growth of export business ($r=0.561$, $p=0.000$). The regression findings also highlighted that product innovations have a positive and significant influence on growth of export business ($\beta=0.343$, $p=0.000$). This implies that a unit increase in product innovations translates to a corresponding increase in growth of export business in horticultural firms in Kenya by 0.343 units. In addition, these findings relate to those of Jusufi, Ukaj and Ajdarpasic (2020) study which found that there is an association between the type of product innovation and an increase in exports. Zhang and Zhu (2016) study also established that product innovation had a positive and significant relationship with export performance. Consequently, these findings affirms the principles of diffusion of innovation theory that when firms innovate and introduce new or improved products, they can attract new customers, expand into new markets, and differentiate themselves from competitors, thereby driving export growth and overall business expansion.

5.3.2 Market Innovations and Growth of Export Business

The study also aimed to determine the influence of market innovations on the growth of export business among horticultural firms in Kenya. The descriptive results outlined that most of the respondents (over 70%) agreed that the firm engages in online advertising, joint ventures and uses digital displays to market their products and access new emerging markets. They also agreed that the firm financially invests in online advertising, purchasing digital displays required to market their products. They also agreed that their marketing staff are well-equipped in using different online advertising platforms and in using digital displays. They also concurred that joint ventures have enabled the firm to increase its customer base and acquire new skills and capabilities. The overall average of responses of 3.59 demonstrated that market innovations are among the key innovation practices adopted in horticultural firms in Kenya. The results concurred with those of Xie and Li (2018) study which outlined that exporters in developing economies that have invested in Research & Development (R&D) and have developed better market intermediaries in their domestic market, have contributed to growth of export businesses. They were also in agreement

with those of Onyango (2016) study which revealed that E-mail marketing, digital displays, websites and online advertising were the most commonly used digital marketing strategies, that have contributed to growth of exports in cut flowers exporting firms in Kenya.

Furthermore, the correlation findings indicated that market innovations had a positive and significant association with growth of export business ($r=0.573$, $p=0.000$). The regression findings also highlighted that market innovations have a positive and significant influence on growth of export business ($\beta=0.257$, $p=0.000$). This means that a unit increase in market innovations leads to a corresponding increase in growth of export business in horticultural firms in Kenya by 0.257 units. These findings were in agreement with Udriyah, Tham and Azam (2019) study which indicated that market orientation and innovation had a positive substantial effect on export performance. In line with these findings, dynamic capabilities theory also emphasizes on the firm's ability to adapt and innovate in response to changing market conditions. When firms invest in new branding strategies or market segmentation approaches it enables them to capitalize on emerging opportunities and drive business growth, including export expansion. However, these findings disagreed with that Silva, Styles and Lages (2017) study which revealed that market innovation had a negative and significant effect with strategic export performance.

5.3.3 Supply-chain Innovations and Growth of Export Business

The study also aimed to examine the influence of supply-chain innovations on the growth of export business among horticultural firms in Kenya. The descriptive results highlighted that majority of the respondents of above 70% agreed that their firms use logistic software, autonomous warehouse robots and E-commerce in its supply-chain practices. They also agreed that their firms invest financially in acquiring updated logistic software, autonomous warehouse robots and the necessary electronic devices used in E-commerce. They also agreed that their firms invest in training their staff to use logistic software, autonomous warehouse robots and different E-commerce platforms. The overall mean of responses of also 3.48 implied that supply-chain innovations are innovative practices that are employed in horticultural firms in Kenya. In addition, these results corroborate those of Wang et al (2018) study which highlighted that firms' business model innovation such as construction of foreign warehouses with facilitated three different supply chain localizations in cross-border e-commerce for export markets including sales, warehousing, and R&D localization.

Moreover, the correlation results noted that supply-chain innovations and growth of export business were positively and significantly correlated (r=0.366, p=0.000). The regression findings also highlighted that supply-chain innovations have a positive and significant influence on growth of export business (β=0.183, p=0.000). This implies that a unit increase in supply-chain innovations leads to a corresponding increase in growth of export business in horticultural firms in Kenya by 0.183 units. The results also concurred with those of Poulsen and Kirori (2017) study which found that supply-chain innovation had a positive and significant effect on performance of horticultural firms in Kenya. Ayoub and Abdallah (2019) study also revealed that supply-chain innovativeness had a positive and significant effect on export performance.

5.3.4 Financial Innovations and Growth of Export Business

The study also sought to establish the influence of financial innovations on the growth of export business among horticultural firms in Kenya. The descriptive results revealed that most of the respondents over 70% agreed that their firms use mobile banking, electronic transfers and have integrated their platform with its banker's system for effecting day to day transactions from the comfort of their offices. They also agreed that their firms have invested financially in purchasing electronic devices used in mobile banking, electronic transfers and in stable internet connection to support mobile and electronic bank transactions. They also concurred that their firms invest in training its staff on the use of the electronic devices utilized in mobile banking, electronic transfers and internet banking. The overall mean of responses of 3.71 also confirmed that financial innovations are also innovation practices embraced by horticultural firms in Kenya. In addition, these results concurred with that of Puatwoe and Piabuo (2017) study which also concluded that financial development indicators including broad money, bank deposits and inter-bank settlement systems increased access to alternative credit and loan fundings for exporters dealing with horticultural products in Cameroon. They were also in agreement with Tonui (2017) study also as it highlighted that liquidity, credit access, working capital, and good cashflow management are essential financial factors that contribute to growth of horticultural firms in Nakuru county.

Moreover, the correlation results noted that financial innovations and growth of export business were positively and significantly correlated (r=0.620, p=0.000). The regression results also found that financial innovations have a positive and significant influence on growth of export business

(β=0.268, p=0.000). This means that a unit increase in financial innovations leads to a corresponding increase in growth of export business in horticultural firms in Kenya by 0.268 units. These findings were in agreement with those of Ngugi and Wamalwa (2018) study which revealed that financial innovation had a positive and significant relationship with export performance of firms in the horticultural sector in Kenya.

5.4 Conclusions

5.4.1 Product Innovations and Growth of Export Business

The study concluded that product innovations are among the innovation practices that are employed by horticultural firms in Kenya to a great extent. This is a result of the observed positive trend in product innovation within the surveyed horticultural firms, with over 70% of respondents acknowledging active engagement in introducing and enhancing horticultural products. The commitment is evident through substantial financial investments in modern post-harvest and greenhouse technologies, highlighting a dedication to staying competitive in the market. Furthermore, the emphasis on staff training further highlights a holistic approach towards ensuring proficiency in product differentiation and technology utilization, suggesting a robust foundation for sustained growth and competitiveness. The study also concluded product innovation was a good predictor of growth of export business among horticultural firms in Kenya. According to the obtained Beta coefficients of product innovations of 0.343, it can also be concluded that a unit increase in product innovations will lead to an increase in growth of export business by 0.343 units.

5.4.2 Market Innovations and Growth of Export Business

The study concluded that the descriptive results emphasize a strategic shift towards modern marketing methods, with a substantial majority (over 70%) of respondents confirming active participation in online advertising, joint ventures, and the utilization of digital displays. The financial commitment to these endeavors underscores the firm's recognition of their significance in accessing emerging markets. In addition, the acknowledgment of well-equipped marketing staff and the positive impact of joint ventures on customer base expansion and skill acquisition suggests a comprehensive and effective approach to staying competitive in a dynamic business landscape. The study also concluded market innovation was a good predictor of growth of export business in horticultural firms in Kenya. In addition, as per the obtained Beta coefficients of market

innovations of 0.257, it was concluded that a unit increase in market innovations will lead to an increase in growth of export business by 0.257 units.

5.4.3 Supply-chain Innovations and Growth of Export Business

The study concluded that the descriptive findings underscore a predominant adoption of advanced technologies in supply-chain management, with over 70% of respondents confirming the use of logistic software, autonomous warehouse robots, and E-commerce platforms within their firms. The financial investments made in acquiring and updating these technologies, along with providing training for staff proficiency, demonstrate a commitment to staying at the forefront of efficient supply-chain practices. This comprehensive approach reflects a strategic alignment with technological advancements, positioning the firms favorably for operational excellence and adaptability in an evolving business environment. The study also concluded supply-chain innovation was a good predictor of growth of export business in horticultural firms in Kenya. Additionally, as per the obtained Beta coefficients of supply-chain innovations of 0.183, it was concluded that a unit improvement in supply-chain innovations will lead to an improvement in growth of export business by 0.183 units.

5.4.4 Financial Innovations and Growth of Export Business

The study concluded that the descriptive findings indicate a prevalent trend among respondents, with over 70% affirming the integration of mobile banking, electronic transfers, and collaborative platforms with banking systems to facilitate seamless day-to-day transactions within their firms. Financial investments in acquiring electronic devices and ensuring a stable internet connection underscore a commitment to the technological infrastructure required for modern financial practices. The concurrent investment in staff training reflects a proactive approach towards ensuring proficiency in utilizing electronic tools, positioning the firms to navigate and leverage the evolving landscape of digital financial transactions effectively. The study also concluded financial innovation was a good predictor of growth of export business in horticultural firms in Kenya. According to the obtained Beta coefficients of financial innovations of 0.268, it was concluded that a unit improvement in financial innovations will lead to an improvement in growth of export business by 0.268 units.

5.5 Recommendations

According to the study findings and conclusions, the study provided recommendations to the management of horticultural firms in Kenya, policy recommendations and theoretical contribution.

5.5.1 Managerial Recommendations

The management of horticultural firms should invest in research and development (R&D) to continuously improve the quality, variety, and uniqueness of horticultural products and enhancing post-harvest handling to extend shelf life.

They should conduct thorough market entrant analysis to identify emerging trends, consumer preferences, and potential niche markets. This will help firms align their products with market demands and tailor marketing strategies accordingly.

They should invest more on e-commerce and digital marketing strategies to reach a wider global audience and establish a direct link with consumers.

They should invest in logistic software and autonomous warehouse robots so as to improve transportation, storage, and distribution processes and ensure that horticultural products reach international markets in a fresh and timely manner.

They should also consider adopting better credit management systems that will help them mitigate against financial risks associated with exporting.

5.5.2 Policy Recommendations

Policymakers should implement policies that foster partnerships between government agencies and private sector stakeholders to create financing programs that support innovation in the horticultural export industry.

Policymakers should also introduce policy measures that offer incentives for horticultural firms to invest in innovation, such as tax breaks, grants, and subsidies for R&D activities.

Policymakers should strengthen policies that allow exporters to negotiate for favorable trade agreements that reduce barriers to entry and facilitate access to target export markets.

5.5.3 Theoretical Contribution

By applying the diffusion of innovation theory, this research has shed more light on how various innovations are adopted, communicated, and spread among horticultural firms in Kenya. This understanding can be crucial for industry practitioners, and researchers seeking to promote innovation adoption within their sectors. Future researchers should also consider to delve deeper into the contextual factors that may facilitate or hinder the diffusion of innovations within the horticultural sector in Kenya. Secondly, by incorporating the new growth theory, the study can contribute to the existing body of knowledge by exploring the linkages between innovation and export business growth. The theory also emphasized the role of knowledge, technology, and innovation in fostering economic growth. This study suggests that future researchers should also explore the potential synergies between the diffusion of innovation theory and new growth theory to develop a more comprehensive framework for analyzing the relationship between innovation and export business growth in the horticultural sector.

5.6 Suggestions for Areas of Further Research

This study discovered that the four categories of innovations explained 37.5% of the variations in growth of export business in horticultural firms in Kenya, meaning that the remaining 62.5% are explained by other factors other than innovations. Hence, this research suggests that further studies should consider examining other factors such as market diversification, human capital and skills and government policies that influence growth of export businesses in horticultural firms in Kenya. Further studies should also consider narrowing conducting case studies of specific horticultural firms based on counties in Kenya. In addition, comparatives studies can also be carried out between two or more horticultural firms in different counties, assess and compare their extent of investment in innovations.

5.7 Study Limitations

The study had limited scope of respondents where it only targeted the senior, middle and junior level managers, leaving out the other staff employees who would have provided more varied responses from managers. Thus, to address this limitation future studies should consider targeting other employees within the 658 horticultural firms in Kenya. This research was also limited to using one quantitative data collection instrument which was a questionnaire. To address this

limitation, the researcher ensured to reach out and administer all the questionnaires to the selected sample respondents, followed all the ethical considerations and followed up on them to ensure they fill all the spaces in the questionnaires and they also return them. Additionally, the study also has limited time and budget scope. To address this limitation the researcher allocated more resources to conduct the research.

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APPENDICES

Appendix I: Letter of Introduction

Date……

To……..

Dear Sir/Madam,

RE: COLLECTION OF RESEARCH DATA

My name is Hilda Gakure. I am a post-graduate student from Strathmore University. I wish to conduct a research titled. "**THE INFLUENCE OF INNOVATIONS ON THE GROWTH OF EXPORT BUSINESS AMONG HORTICULTURAL FIRMS IN KENYA**.". A questionnaire has been created to gather pertinent information for this research. You have been recognized as one of the participants, and we kindly ask you to dedicate some time to complete the questionnaire provided to you. Any information you share will be treated with utmost confidentiality and will be used solely for academic purposes. Participation in the study is voluntary. Thank you for your willingness to participate in this research.

Yours Faithfully,

Hilda Gakure

Appendix II: Research Questionnaire

This questionnaire is used to gather research data on the **Influence of Innovations on the Growth of Export Business among Horticultural Firms in Kenya**. The effectiveness of this study will be greatly aided by your truthful and correct responses to the questionnaire questions. Please respond to each of the questions listed by marking the item that matches your opinion with a tick (√).

Section A. Demographic Information

1. Name of the institution (Optional)……
2. Kindly indicate your gender
   - Male ☐
   - Female ☐
3. Kindly indicate your age bracket
   - 25-34 years ☐
   - 35-44 years ☐
   - 45-54 years ☐
   - 55 years and above ☐
4. What is your position in the institution?
   - Senior level manager ☐
   - Middle level manager ☐
   - Junior level manager ☐
5. Kindly indicate your highest academic qualifications
   - Diploma ☐
   - Bachelor's degree ☐
   - Master's degree ☐
   - Doctorate ☐
6. For how long have you been working with the institution?
   - 1-5 years ☐
   - 6-10 years ☐
   - 11-15 years ☐

15-20 years ☐

Over 20 years ☐

Section B: Product Innovations

This section consists of statements regarding product innovations by horticultural firms in Kenya. Use the scale of 1-5. Where 1= Strongly Disagree, 2= Disagree, 3= Moderately agree, 4= Agree and 5= Strongly Agree.

	Statements	1	2	3	4	5
7	The firm introduces new products or significantly improved products					
8	The firm invests in product differentiation practices to improve the packaging of their products.					
9	The staff of the firm are well-trained in employing the product differentiation practices.					
10	The firm has adopted post-harvest technologies in their warehouses.					
11	The firm has financially invested in purchasing modern post-harvest technologies.					
12	The staff of the firm are well-trained in using the post-harvest technologies.					
13	The firm uses greenhouse technologies in its daily operations.					
14	The firm invests financially in equipping their greenhouses with new technologies.					
15	The staff of the firm are well-trained in using the greenhouse technologies.					

Section C: Market Innovations

This section consists of statements on market innovations by horticultural firms in Kenya. Use the scale of 1-5. Where 1= Strongly Disagree, 2= Disagree, 3= Moderately agree, 4= Agree and 5= Strongly Agree.

	Statements	1	2	3	4	5
16	The firm engages in online advertising to market its products to its customers.					
17	The firm invest financially in advertising their products on the different online platforms.					
18	The marketing staff are well-equipped in using the different online platform to advertise the firm's products.					
19	The firm uses digital displays to market its products to its customers.					
20	The firm invests financially in purchasing the digital displays required to market their products.					
21	The marketing staff are well-equipped in using digital displays to advertise the firm's products.					
22	The firm engages in joint ventures to access new emerging markets.					
23	Joint ventures help the firm to increase its customer base.					
24	Joint ventures have helped the firm acquire new skills and capabilities.					

Section D: Supply-chain Innovations

This section consists of statements on extent of usage of supply-chain innovations on export business among horticultural firms in Kenya. Use the scale of 1-5. Where 1=Strongly Disagree, 2= Disagree, 3= Moderately agree, 4= Agree and 5= Strongly Agree.

	Statements	1	2	3	4	5
25	The firm uses logistic software in its supply-chain practices.					
26	The firm invests financially in acquiring updated logistic software.					
27	The firm invests in training their staff to use logistic software.					

28	The firm uses autonomous warehouse robots in its supply-chain practices.					
29	The firm invests financially in acquiring updated autonomous warehouse robots.					
30	The firm invests in training its staff to use autonomous warehouse robots.					
31	The firm utilizes E-commerce in its supply-chain practices.					
32	The firm invests financially in acquiring the necessary electronic devices used in E-commerce.					
33	The firm invests in training its staff on the use of the different E-commerce platforms.					

Section E: Financial Innovations

This section consists of statements on financial innovations by horticultural firms in Kenya. Use the scale of 1-5. Where 1= Strongly Disagree, 2= Disagree, 3= Moderately agree, 4= Agree and 5= Strongly Agree.

	Statements	1	2	3	4	5
34	The firm uses mobile banking as a preferred mode of business transactions.					
35	The firm invests financially in purchasing the electronic devices that are used in mobile banking.					
36	The firm invests in training its staff on the use of the electronic devices utilized in mobile banking.					
37	The firm uses electronic transfers as a preferred mode of business transactions.					
38	The firm invests financially in purchasing the electronic devices that are used in electronic transfers.					
39	The firm invests in training its staff on the use of the electronic devices utilized in electronic transfers.					

40	The firm has integrated it's platform with its banker's system for effecting day to day transactions from the comfort of its offices.					
41	The firm has invested in stable internet connection to support mobile and electronic bank transactions.					
42	The firm in collaboration with its bankers invest in training its staff on the use of the electronic devices utilized in internet banking.					

Section F: Growth of Export Business

This section consists of statements on growth of export business among horticultural firms in Kenya. Use the scale of 1-5. Where 1= Strongly Disagree, 2= Disagree, 3= Moderately agree, 4= Agree and 5= Strongly Agree.

	Statements	1	2	3	4	5
43	The total export volume has been on an increasing trend for the last five years.					
44	The total export volume has been exceeding the annual firm's target for the last five years.					
45	The highest percentage of total export volume has been contributed by innovations in the firm.					
46	The market access of the firm has been on an increasing trend for the last five years.					
47	The market access of the firm has been exceeding the annual firm's target for the last five years.					
48	The percentage increase in market access has been influenced by innovations in the firm.					
49	Product development in the firm has been on an increasing trend for the last five years.					

50	Product development in the firm has been exceeding the annual firm's target for the last five years.					
51	The highest percentage of product development has been contributed by innovations in the firm.					

Thank you for your participation.

Appendix III: List of Horticultural Firms in Kenya

1	AAA GROWERS LIMITED
2	AAFRA FLOWERS
3	ABC IMPACT ADVISORS LIMITED
4	ABELIA FLORA INTERNATIONAL LIMITED
5	ABOUT NUTRIFRESH KENYA LIMITED
6	ADRINE SMART VENTURES LIMITED
7	AFPEIC
8	AFRICA BLOOMS LIMITED
9	AFRICADO LTD COMPANY
10	AFRICALLA K LIMITED
11	AFRIEXPORTS ENTERPRISE LIMITED
12	AFRIHERBS KENYA LIMITED
13	AFROSTAR AGROPROD (K) LIMITED
14	AGORO HOLDINGS
15	AGRIFLORA KENYA LTD
16	AHAVAH FARMS LTD
17	ALEVIN GROUP LIMITED
18	ALFA FRESH ENTERPRISES LIMITED
19	ALLEGHENY GREENS LTD
20	ALLFARM EXPORTS
21	ALLFARM EXPORTS
22	ALLFRESH GROWERS LTD
23	ALOHA EXPORTERS LIMITED
24	ALPHA FRUITS COMPANY LIMITED
25	AMBANGO FRESH GREENS
26	ANAYAH FLOWERS LTD
27	ANGLEBET AFRICA LIMITED
28	ANNAK LIMITED
29	ANNANCY FRESH FARM CO. LTD
30	ANTENNAE HOLDING LIMITED
31	AQUILA DEVELOPMENT CO. LTD
32	ARISHAW HOLDINGS LIMITED
33	AROMATIC FRESH KENYA LIMITED
34	ARVILAN GROWERS LIMITED
35	ATHAKA FLOWERS
36	ATHI FARM EXPORTERS LIMITED
37	AURA LOGIC LIMITED
38	AVO KWANZA LIMITED
39	AVODEMIA LIMITED
40	AVOVEG HEALTH KENYA LIMITED
41	AVVOKA LIMITED
42	AZALEA BLOOMS LTD
43	B2B TEC LIMITED
44	BAOBANTU NATURALS
45	BARKE ENTERPRISES LIMITED
46	BARRINATE FARMS LIMITED
47	BARSTA ENTERPRISES LIMITED
48	BATIAN FLOWERS LTD
49	BAUER FARMING EAST AFRICA LIMITED
50	BEAUTY LINE
51	BEETEE-EM BLOEMS FLOWERS
52	BELLA AND FRESCA KENYA LTD
53	BENEV FLORA LIMITED
54	BENOK EXPORTERS LTD
55	BENTA FRESH LIMITED
56	BENTEX FARM
57	BENVAR ESTATES LIMITED
58	BERITO FRESH PRODUCE LIMITED
59	BEST FLORA LOGISTICS KENYA LTD
60	BEST HARVEST FARM PRODUCE SUPPLIERS LTD
61	BEST TROPICAL FRUITS LIMITED

62	BESTVILLE HOLDINGS LIMITED
63	BIG FARM ENTERPRISES LIMITED
64	BIG FLOWERS PLC
65	BIGOT FLOWERS KENYA LIMITED
66	BILASHAKA FLOWERS LIMITED
67	BIN MUSHTAQ INTERNATIONAL IMPEX LTD
68	BIOFARMS LIMITED
69	BIOLOGICA FRESH LIMITED
70	BLACK PETALS LIMITED
71	BLACK TULIP EXPORT HANDLERS LIMITED
72	BLACKTULIP BUSINESS SUPPORT
73	BLISS FLORA LTD
74	BLOOM GROWERS
75	BLOOM VALLEY LIMITED
76	BLOOMING AFRICA LIMITED
77	BLOOMINGDALE ROSES KENYA LIMITED
78	BLOOMS FAIRWOOD FLOWERS
79	BLUE UMBRELLA INVESTMENTS
80	BLUE ZONE WORKS LIMITED
81	BLUESKY HERBS PLC
82	BOUQUET FARM LTD
83	BRACKEN HILL FARM LIMITED
84	BRALISONINVEST COMPANY LIMITED
85	BRAMO EXOTICS LIMITED
86	BRASSTAND AFRICA LTD
87	BRAVOKEN FRESH LIMITED
88	BRIDGE IMPORT AND EXPORT TRADING COMPANY LIMITED
89	BROBAN EXPORT & IMPORT AGENCIES
90	BROOKLYN FARM
91	BROOKLYN LIMITED
92	BUCHATI GAMBIER BLOOMS LIMITED
93	BUDS & BLOOMS LTD
94	BUNTER FLORA LIMITED
95	BURTON AND BAMBER COMPANY LTD
96	CAKESOM GROUP LIMITED
97	CALY FLORA LTD
98	CANOPY FARMS
99	CARTESIA BLOOMS INTERNATIONAL
100	CARZAN FLOWERS (K) LTD
101	CAVIN GLOBAL LIMITED
102	CENACLE KENYA LTD
103	CENTAURUS COMPANY LIMITED
104	CHAELDER ENTERPRISES
105	CHATIKOM ENTERPRISES LIMITED
106	CHECHE FLORA LTD
107	CHICHI GREEN AFRICA LTD
108	CLOVER FLOWERS LIMITED
109	CNS LOGISTICS LIMITED
110	COLOUR CROPS LTD
111	COMING UP ROSES LTD
112	CREDIBLE BLOOMS LIMITED
113	CRIMZA ECO VENTURES LTD
114	CRISP FRESH PRODUCE
115	DAKIEM LIMITED
116	DALEFLORA LIMITED
117	DAMIL EXPORTERS LTD
118	DANKA INVESTMENT
119	DANTE FRESH FARM SUPPLIES LIMITED
120	DAVIDSONS FPS LIMITED
121	DAWN DEW FLOWERS LTD
122	DE RUITER EAST AFRICA LIMITED
123	DECAFRIC PERISHABLE LIMITED
124	DECOFRESH ROSES
125	DEL MONTE KENYA

126	DELI FLORA LIMITED
127	DELIGHT FLORA LTD
128	DEMARU LIMITED
129	DESIRE FLORA KENYA LTD
130	DEW DROPS GROWERS LIMITED
131	DHAMIRI LIMITED
132	DHUKU LIMITED
133	DIAGNOSTIC AUTO LTD
134	DIAKIM FRESH LTD
135	DIALLO FRESH LIMITED
136	DIRENE PACKAGING AND BUSINESS ADVISORY SERVICES
137	DONGWRITCH IMPORTERS AND EXPORTERS LIMITED
138	DRIPLETS LIMITED
139	DUTCH FLOWER GROUP KENYA LIMITED
140	DUTCH FLOWER GROUP KENYA LIMITED
141	DYNA TRADE INTERNATIONAL LTD
142	DYNAMIQUE HORTICULTURE
143	EAST AFRICAN GROWERS FRESH PRODUCE LIMITED
144	EAST AFRICAN GROWERS LIMITED
145	EASTERN GREENS AND LIVESTOCK LTD
146	ECO ROSES LIMITED
147	EGURU TROPICAL PRODUCE
148	EL DARWASH FRESH PRODUCE LTD
149	ELDO FRESH LIMITED
150	ELMAS GREENS LIMITED
151	ELSTEEN ENTERPRISES LIMITED
152	EMAX FRESH FRUIT LIMITED
153	EMMAY COMMODITIES KENYA LIMITED
154	ENA VEG EXPORTERS
155	ENKASITI FLOWER GROWERS LTD
156	ENKATA EXPORTERS LIMITED
157	ENZISPRING COMPANY LIMITED
158	EQUATOR FLOWERS (K) LTD
159	EQUATOR KENYA LIMITED
160	EQUATORIAL PLANET EXPORTERS LTD
161	EQUINOX HORTICULTURE LTD
162	ESCOMA FARM LIMITED
163	EUROFRESH LIMITED
164	EVEREST ENTERPRISES LIMITED
165	EVERFLORA LIMITED
166	EVERGREEN HERBS LIMITED
167	EVEROSE FRESH PRODUCE EXPORTS
168	EXAVIER FRESH EXOTICS LTD
169	EXOTIC PENINA FIELDS GROUP LTD
170	FAIR FLORA LTD
171	FAIR TRADE ENTERPRISES LIMITED
172	FAIRY FLOWERS KENYA
173	FAITKAM INVESTMENT LIMITED
174	FARM FRESH HERBS LIMITED
175	FAWAKI FRESH PACK INTERNATIONAL LIMITED
176	FAWAKIH IMPORT AND EXPORT LTD
177	FENMOLT FLOWERS
178	FIDES KENYA LTD
179	FINA FLORA LTD
180	FINE AROMAS OF KENYA COMPANY LIMITED
181	FINEVEG TRADING COMPANY LIMITED
182	FLAMINGO HORTICULTURE KENYA LTD
183	FLAWLESS FLOWERS INTERNATIONAL LIMITED
184	FLORA DELIGHT LTD
185	FLORA OLA LIMITED
186	FLORAMARKET KENYA LTD
187	FLORELLA LTD
188	FLORENCIA BLOOMS LIMITED
189	FLORENSIS KENYA LIMITED

190	FLORENZA
191	FLORIKEN BLOOMS
192	FLOWORLD EXPORTERS LTD
193	FONTANA LIMITED
194	FOOD AFRICA ENTERPRISES LTD
195	FOREST GATE (EPZ) LIMITED
196	FOREVER GREEN GROWERS LTD
197	FRAGRANCE FLOWERS LIMITED
198	FRAWIK BLOOMS LTD
199	FRELIN FRESH LIMITED
200	FRESCA FRUTA LIMITED
201	FRESH GABANA EXPORTERS LIMITED
202	FRESH VIEW FLAVOURS LIMITED
203	FRESH WORLD PRODUCE LIMITED
204	FRESHGOLD KENYA LIMITED
205	FRESHPAK HORTICULTURES LTD
206	FRESHWEALTH LTD
207	FRIGOKEN LTD
208	FRUIT ZODIAC LIMITED
209	FRUITPLUS LIMITED
210	GABBANA FRESH
211	GALAXY FLOWERS LIMITED
212	GAPASQUEENS FRESH PRODUCE CO LIMITED
213	GAPASQUEENS FRESH PRODUCE CO LIMITED
214	GARDENVEG EXPORTERS LTD
215	GATOKA LTD
216	GILGAL HEIGHTS LTD
217	GIRRAFE EXPORTERS LTD
218	GLOBAL DELIFRUITZ LIMITED
219	GLORY GARDENS LTD
220	GLUMAL FRESH PRODUCE LIMITED
221	GO FOODS LIMITED
222	GO FOR GREEN KENYA LIMITED
223	GOLDEN TULIP FARMS LTD
224	GOS LIMITED
225	GOSHEN FARM EXPORTERS LTD
226	GRAND HILLVANNA LTD
227	GREAT GLOBAL TRADERS & CONTRACTORS COMPANY LIMITED
228	GREEN PLAINS PICKS AND PACKS LTD
229	GREENBROOK FRESH PRODUCTS LTD
230	GREENGRO INTERNATIONAL
231	GREENSTEP EXPORTERS FRESH LTD
232	GREENSTEP EXPORTERS FRESH LTD
233	GREENVALE EXPORTERS LIMITED
234	GREYSTONE COMMODITIES LTD
235	GROOVE LIMITED
236	GROVAL INTERNATIONAL LIMITED
237	GROVE IMPORT AND EXPORT COMPANY LIMITED
238	GROWFIELDS LIMITED
239	HABEX AGRO LTD
240	HALISI FRESH LTD
241	HANNA ROSES LTD
242	HARBEN VENTURES
243	HARIR INTERNATIONAL LTD
244	HARIR INTERNATIONAL LTD
245	HARVEST CIRLE LTD
246	HARVEST LIMITED
247	HAWAA GROWERS
248	HENAT ENTERPRISES LIMITED
249	HIGHLAND FRUITS AND VEGETABLE COMPANY LIMITED
250	HIGHLANDS PLANTS LIMITED
251	HILLSIDE FRESH LTD
252	HOLIDAY FLOWERS
253	HOLSUM VENTURES LIMITED

254	HOMBE FLOWERS INVESTMENTS LTD
255	HORIZON HORTICULTURE AND EXPORTERS LIMITED
256	HORNHARVEST GH LIMITED
257	HSA GLOBAL FOODS LIMITED
258	HUB IMPORTS AND EXPORTS LIMITED
259	ICAGI FARMS LTD
260	IDEAL MATUNDA LTD
261	IMANI FLOWERS LTD
262	IMPALA AFRICA LIMITED
263	IMPALA FRESH KENYA LIMITED
264	IMPERIUM SYNERGY LIMITED
265	IMPEX VYAPAR
266	INOTURA EXPORT KENYA LTD
267	INTERLINK FLOWERS (K) LTD
268	INTERNATIONAL SAFETY AND QUALITY COMPANY LTD
269	INTERPLANT ROSES EA LTD
270	INTERSTATE TRADE COMPANY LIMITED
271	INTERVEG EXPORTS LTD
272	INVOUR FRESH
273	INYUAT FARM FRESH CO. LTD
274	IQAAM AGENCIES LTD
275	ISINYA ROSES LIMITED
276	JACHRI EXPORTS
277	JADE FRESH LIMITED
278	JAGANATH GROWERS LIMITED
279	JAMES FINLAY KENYA LIMITED
280	JAMJOY INTERNATIONAL COMPANY
281	JANI FRESH LTD
282	JASM TRADING LIMITED
283	JATONY FLOWERS
284	JEFER ENTERPRISES LTD
285	JENNY FRESH POINT LTD
286	JIBA FRESH LTD
287	JIMS FRESH VEGETABLES GROWERS AND EXPORTERS LTD
288	JOGIM SOLUTIONS LIMITED
289	JOTSEN HORTVEGES
290	JOWA BLOOMS
291	JOYKIBE INVESTMENT
292	JUNGLE NUTS LIMITED
293	KAHVE COFFEE LIMITED
294	KAIVIEW ECOLOGICAL HORTICULTURE LTD
295	KAIZEN SAMAWATI INTERNATIONAL LIMITED
296	KAKUZI PLC
297	KAMILI AVOCADOS LTD
298	KANARC FARM EXPORT LIMITED
299	KANDIA FRESH PRODUCE SUPPLIERS LTD
300	KANKAM EXPORTERS LIMITED
301	KANSON IMPORTERS AND EXPORTERS LIMITED
302	KAREN ROSES LTD
303	KARIGI HORTICULTURE GROWERS
304	KARIKI LTD
305	KARIUNGA GREENS LIMITED
306	KARWIZ FLORAL
307	KATHYAKA EXOTICS
308	KEFZONE LIMITED
309	KEITT EXPORTERS LTD
310	KEITT FRESH LTD
311	KEMAKS BLOOMS LIMITED
312	KENFLORAA LTD
313	KENSALT LIMITED
314	KENSMART HORTICULTURE(EA)LIMITED
315	KENTALYA LTD
316	KENTON FARM LIMITED
317	KENVEG FARM PRODUCE LIMITED

318	KENYA CUTTINGS LTD
319	KENYA FRESH PRODUCE EXPORTERS LIMITED
320	KENYA HORTICULTURAL EXPORTERS (1977) LTD
321	KEVIN INTERNATIONAL GROUP (AFRICA) LIMITED
322	KEVINCINTAH GREEN GROWERS
323	KEY EXPORT COMPANY LTD
324	KEYO FRESH LIMITED
325	KGF FRESH EXPORTERS LIMITED
326	KHAINIL FLOWERS AND FRUITS LIMITED
327	KIHARA SWEET PEPPER FARM LTD
328	KIJANI VALLEY LTD
329	KIKI FLOWERS (K) LTD
330	KIKWETU FLOWERS LIMITED
331	KILIMANJARO GROWERS LTD
332	KIMMAN EXPORT LIMITED
333	KIMMAN ROSES LIMITED
334	KINGI FARMLAND LIMITED
335	KIPEKA FRESH COMMODITIES LTD
336	KISAAN EXPORTS LTD
337	KISEMENTI OAK FARM LTD
338	KISIMA FARM LTD
339	KIVI FRESH LTD
340	KNET FLOWERS LTD
341	KOMI FARM LIMITED
342	KONGONI RIVER FARM LTD
343	KORONGO AGRIBUSINESS LTD
344	KRANIAN FARMS
345	KREATIVE ROSES LTD
346	KYMA FARM FRESH EXPORTERS
347	KYULU FARM FRESH
348	LAMA FRESH PRODUCE LIMITED
349	LAMIFLORA LTD
350	LAMORNA LIMITED
351	LATHYFLORA K LTD
352	LAUREL INVESTMENT LTD
353	LAUREN INTERNATIONAL FLOWERS LIMITED
354	LEGRANE LIMITED
355	LENARA BELLE LIMITED
356	LESATIMA LIMITED
357	LITTLE BLOOMERS LTD
358	LIVE WIRE LTD
359	LOBELIA ROSES LIMITED
360	LOLOMARIK LTD
361	LOWLAND VEGETABLE GROWING COMPANY LIMITED
362	LU TART FRUITS AND VEGETABLES
363	LUCKY FRESH PRODUCTS LTD
364	LUIFARM LIMITED
365	LULA VILLAM LIMITED
366	LYNNEX COMPANY
367	LYRA GENERAL TRADING LTD
368	M.M MANKO FARM FRESH LTD
369	MAASAI FLOWERS LTD
370	MAASKANT FLOWERS LTD
371	MACE FOODS LTD
372	MAGANA FLOWERS KENYA LIMITED
373	MAGNATE FLOWERS LIMITED
374	MAISON DE FLOWER LIMITED
375	MAJI MAZURI FARM LTD
376	MAKINDU GROWERS AND PACKERS LTD
377	MARA (EPZ) LTD
378	MARACA ENTERPRISES LIMITED
379	MARIDADI FLOWERS LTD
380	MARJA GENERAL COMPANY
381	MARKGROWN ENTERPRISE LIMITED

382	MARSIL FRESH EXPORTS
383	MARTJIM FRESH PRODUCE LTD
384	MARVEL GREENS LIMITED
385	MAU FRUITS LIMITED
386	MAU VIEW SACCO
387	MAUA AGRITECH LTD
388	MAUFLORA LIMITED
389	MAVUNO ORGANICS KENYA LIMITED
390	MAXAM LIMITED
391	MAYFAIR CAPITAL LIMITED
392	MAZAO FOODS LIMITED
393	MBOGA TUU LTD
394	MDG FLOWERS LTD
395	MEALJOCA FRESH PRODUCE EXPORTERS LTD
396	MEDIRA LTD
397	MELBRIMO INVESTMENT COMPANY LIMITED
398	MERCHANDISE MECCA SUPPLIES LIMITED
399	MEREST FLOWERS LTD
400	MERU GREENS HORTICULTURE EPZ LTD
401	MERYBERY TRADING COMPANY LIMITED
402	MEVROSE EXPORTS LTD
403	MIDLANDS LIMITED
404	MIDRIB LIMITED
405	MIKOM FLOWERS
406	MIRAMAR INTERNATIONAL LIMITED
407	MOAB GENERAL TRADING LIMITED
408	MODEST INTERNATIONAL LTD
409	MOFARM FRESH FRUITS EXPORTERS LIMITED
410	MOISSANITE HOLDINGS COMPANY LIMITED
411	MOLO GREENS LTD
412	MOLO RIVER ROSES LIMITED
413	MORINGA FOR LIFE EPZ LIMITED
414	MORNING STAR VENTURES LIMITED
415	MOUNT ELGON ORCHARDS
416	MOUNT KENYA ALSTROEMERIA LTD
417	MP FLOWERS KENYA LTD
418	MT. KENYA SPROUTS LTD
419	MUGGREEN
420	MULA EXPORT LIMITED
421	MULT GROW INVESTMENTS
422	MUMIFLORA LIMITED
423	MURARA PLANTS LIMITED
424	MWIHOKO FLOWERS
425	MYLES FARM & SUPPLIES
426	MYNA INVESTMENT LTD
427	MYNA INVESTMENT LTD
428	MYNER EXPORTS LTD
429	NAELL GENERAL TRADING LIMITED
430	NAKESH BLOOMS LIMITED
431	NAMAA GROUP LIMITED
432	NAMUNYAK EXPORTERS LIMITED
434	NATHE ENTERPRISES LIMITED
435	NAWIRI CROPS
436	NEAT LOGISTICS LIMITED
437	NEOM FRUITS EXPORTERS LIMITED
438	NEPTUNE FLOWERS AGENCIES
439	NEUMA COMPANY LTD
440	NEW AGRODEAL KENYA LIMITED
441	NGONG VEG LIMITED
442	NINI LTD
443	NIRP EAST AFRICA LTD
444	NJOTLAND MARKETING AND EXPORT COMPANY LIMITED
445	NUETRIX LIMITED
446	NYATIKE GREENS LIMITED

447	OAKSTONE LIMITED
448	OKA FRESH EXPORTS LTD
449	OLIJ KENYA PROPAGATION LTD
450	OLIVADO EPZ
451	OLIVADO FRESH EPZ
452	OL-NJOROWA LTD
453	ONTWEKA SARDONX LIMITED
454	OPTIMUM FRUVEG LIMITED
455	ORCHARD PICKS LTD
456	ORIENT MULTIPURPOSE COMPANY LIMITED
457	ORIGEN GROUP EPZ LTD
458	OSERIAN DEVELOPMENT COMPANY LIMITED
459	OSS INTERNATIONAL LIMITED
460	P.J DAVE FLOWERS LTD
461	P.J DAVE FLOWERS TIMAU LTD
462	PANDA FLOWERS LIMITED
463	PANOCAL INTERNATIONAL LIMITED
464	PAPA FARMERS LIMITED
465	PARACHICHI EXPORTERS LIMITED
466	PAULS FRESH EXPORTERS LIMITED
467	PECY EXPORTERS
468	PENTA TANCOM LTD T/A PENTA FLOWERS
469	PEPETA HOLDINGS LIMITED
470	PERSEA ENTERPRISES LIMITED
471	PERSEA OILS AND ORCHARDS LIMITED
472	PHARMEKO EAST AFRICA LIMITED
473	PHILIAM GROUP CARGO LIMITED
474	PHILMAN INVESTMENT LTD
475	PHINNA FLOWERS LTD
476	PHYMA FRESH PRODUCE LTD
477	PICKY PRODUCE
478	PIGEON BLOOMS LIMITED
479	PINO AGENCIES
480	PJ DAVE FLORA LTD
481	PLAN FRESH LIMITED
482	PLANET CHIKA CHIKA LIMITED
483	POLKA DOT INTERNATIONAL
484	POLLEN LIMITED
485	POLLYFLEUR LTD
486	PRECISE FLOWERS LTD
487	PREMIER FRESH LTD
488	PRIMAROSA FLOWERS LTD
489	PRIME FLORA LTD
490	PRIME PRODUCTS INTERNATIONAL LIMITED
491	PROBLOOM LIMITED
492	PROGENY VENTURES LTD
493	PURECIRCLE AFRICA LIMITED
494	Q-STAR FARMS LIMITED
495	QUATRO CONSORTIUM VENTURES LIMITED
496	QUICK SOURCE PRODUCE EXPORTERS
497	RAAYAN EXPORTERS LIMITED
498	RAFIKI FLOWERS LTD
499	RAIENS IMPEX LTD
500	RAINBOW BOUQUETS
501	RAINFOREST FARMLANDS KENYA LIMITED
502	RAMBI INVESTMENTS LIMITED
503	RAMBI INVESTMENTS LIMITED
504	REAF FRESH
505	REBBY TOUCH FLOWERS
506	RED LANDS ROSES LTD
507	REMBO FLOWERS
508	REUKEMI
509	REVIVAL FARMS LIMITED
510	RHINO FLORICULTURE LIMITED

511	RHODIUM AFRICA CONSTRUCTION CO LIMITED
512	RIFT VALLEY ROSES(K) LTD
513	RIM AGRICULTURE SERVICES LIMITED
514	RIMI FLORA LIMITED
515	RIVEREDGE EXPORTERS
516	RIZIKI FRESH LTD
517	ROBBEROSE VENTURES LIMITED
518	ROLEK FLOWERS KENYA LTD
519	ROMADE PRODUCE
520	ROMWA VENTURES LIMITED
521	ROSA PARK FLOWERS
522	ROSE BUNK INTERNATIONAL LTD
523	ROSEPATH PETALS LTD
524	ROSETO LIMITED
525	ROYAL FLORAHOLLAND KENYA LIMITED
526	ROZZIKA GARDEN CENTRE LTD
527	RTC FRUITS CO LTD
528	RUTH GROWERS AND EXPORTERS LIMITED
529	RWATHIA AGROFARM
530	SABWANI FLOWERS LIMITED
531	SACCO FRESH LTD
532	SAHAL INTERNATIONAL TRADING GROUP LIMITED
533	SAIFAT TRADING COMPANY LIMITED
534	SAIPEI FOODS LIMITED
535	SALAD& SONS INVESTMENT LIMITED
536	SAND PRO GROWERS LTD
537	SASINI AVOCADO EPZ LIMITED
538	SATMAR TECHNOLOGIES CO LTD
539	SAVANNA FLOWERS PLC
540	SCENT BLUMEN ENTERPRISES LIMITED
541	SEASONS ORCHARD LIMITED
542	SELECTA KENYA
543	SEYIAN PRODUCTS LIMITED
544	SHADES HORTICULTURE LIMITED
545	SHALIMAR FLOWERS KENYA LIMITED
546	SHASHI MERCHANTS
547	SIAN EXPORTS KENYA LIMITED
548	SIDAI FRUITS AND VEGES LIMITED
549	SIERRA FLORA LIMITED
550	SIGNATURE EXPORTERS LIMITED
551	SIGNET FRUITS AND VEGETABLES EXPORTERS
552	SIGNUM FRESH FRUIT EXPORTERS LTD
553	SIMBA FRESH PRODUCE LTD
554	SINETIC TRADING COMPANY LIMITED
555	SIRGOEK FLOWERS CO. LTD
556	SKY FOODS EXPORTERS LIMITED
557	SLIKWEID KENYA LIMITED
558	SOJANMI SPRINGFIELDS LTD
559	SOLFRUIT KENYA LIMITED
560	SOLOLO AGRICULTURE LTD
561	SOLOPLANT KENYA LIMITED
562	SONIC FRESH LTD
563	SOSIANI FLOWERS LIMITED
564	SOSIO FRESH FRUIT AND VEGETABLE EXPORTERS
565	SOUTHERN HAULAGE LIMITED
566	SPACEEYE AGRO
567	SPINNERS VENTURES LIMITED
568	SPLENDIX LIMITED
569	SPRING FRESH GROWERS AND EXPORTERS
570	SPRING GREEN VENTURES LIMITED
571	SQ FLORA LTD
572	STARTREX SMART COMPANY
573	STELLA RASMUSSEN GMBH
574	STOKMAN ROZEN KENYA LIMITED

575	SUBATI GROUP LIMITED
576	SUMMERFEST FLOWERS LTD
577	SUMMERFRUITS ENTERPRISES LIMITED
578	SUMSERON TEA ENTERPRISES LIMITED
579	SUNFLORITECH LIMITED
580	SUNRIPE (1976) LTD
581	SUPREME FLORAL LTD
582	SUPREME FRESH FRUITS SUPPLIES LIMITED
583	SWEETSCENT FLOWERS LTD
584	SYANFENG AFRICA FRESHNESS LIMITED
585	TAKOOR EXPORT KENYA LTD
586	TAMBUZI LTD
587	TELTANE LIMITED
588	TERRASOL KENYA LIMITED
589	TETRAGRAMMATON LIMITED
590	THAMANI FLORA LTD
591	THE FARM PLACE LIMITED
592	THE FLOWER PATCH LTD
593	THE FLOWER PEOPLE LIMITED
594	THE FLOWER SOURCE
595	THE FRESH PRODUCTS LIMITED
596	THORNE LINNK LTD
597	TIMAFLOR LTD
598	TISSA FARM FRESH
599	TOPVEG EXPORTERS LTD
600	TOTAL FRESH EXPORTERS LTD
601	TRADEWINDS LOGISTICS LIMITED
602	TRANSEBEL LTD
603	TREE HILL FRESH AGENCIES LTD
604	TRIUMPH EXOTICA LTD
605	TULAGA FLOWERS LIMITED
606	TURASHA WINDSONG FARM LIMITED
607	TWIVIS INVESTMENTS LTD
608	TYMTRACK
609	TYROBEL FRESH PRODUCE AND EXPORTERS LIMITED
610	UHURU FLOWERS LIMITED
611	UKAY COMPANY LIMITED
612	ULTRA-FLO LTD
613	UMALA ORGANIC FOODS LTD
614	UNIFLORA SERVICES LIMITED
615	UNITED SELECTIONS KENYA LTD
616	UTEE ESTATE LIMITED
617	VALENTINE GROWERS CO.LTD
618	VALLEY VEGFRUITS LIMITED
619	VALUE FRESH LIMITED
620	VAN DEN BERG LIMITED
621	VANKLEEF KENYA LIMITED
622	VEG BATIAN EXPORTERS LIMITED
623	VEGGIE WORLD KENYA LIMITED
624	VEGPRO KENYA LIMITED
625	VERT LTD
626	VERTICAL AGRO (EPZ) LIMITED
627	VICTORIA DALE FLOWERS
628	VIJAYA RUDRA IMPEX LIMITED
629	VIMAX FRESH EXPORTERS ENTERPRISES
630	VITAPURE AFRICA LIMITED
631	VORTANA FRESH LIMITED
632	WAMU INVESTMENTS LTD
633	WARIDI LIMITED
634	WATERBUCK FRESH FOODS LTD
635	WAYPOINT SUPPLIERS KENYA LIMITED
636	WENDO FRESH EXPORTERS
637	WERMORT INDUSTRIES LTD
638	WEST EAST CENTRAL AGRIGATORS NETWORK LTD

639	WESTGATE PROFRESH EXPORTS
640	WHITE VALLEY GENERAL MERCHANT
641	WILDFIRE LIMITED
642	WILFAY INVESTMENT LTD
643	WILMAR AGRO LIMITED
644	WINCHESTER FARM LTD
645	WINFIELD AFRICA LIMITED
646	WINSTEP FRESH PRODUCE
647	WINTECH EAST AFRICA LIMITED
648	WINTECHS MERCHANTS LTD
649	WIRAPFLEURS
650	WISEPHYK PRODUCE LIMITED
651	XPRESSIONS FLORA LTD
652	YUNIQUE FLOWERS AND ROSES
653	ZAMZAM FLOWERS
655	ZEDGEE FLOWERS LTD
656	ZEDGEE LTD
657	ZENA ROSES LTD
658	ZUHUR BLOOMS LTD

Appendix IV: Ethical Approval Letter

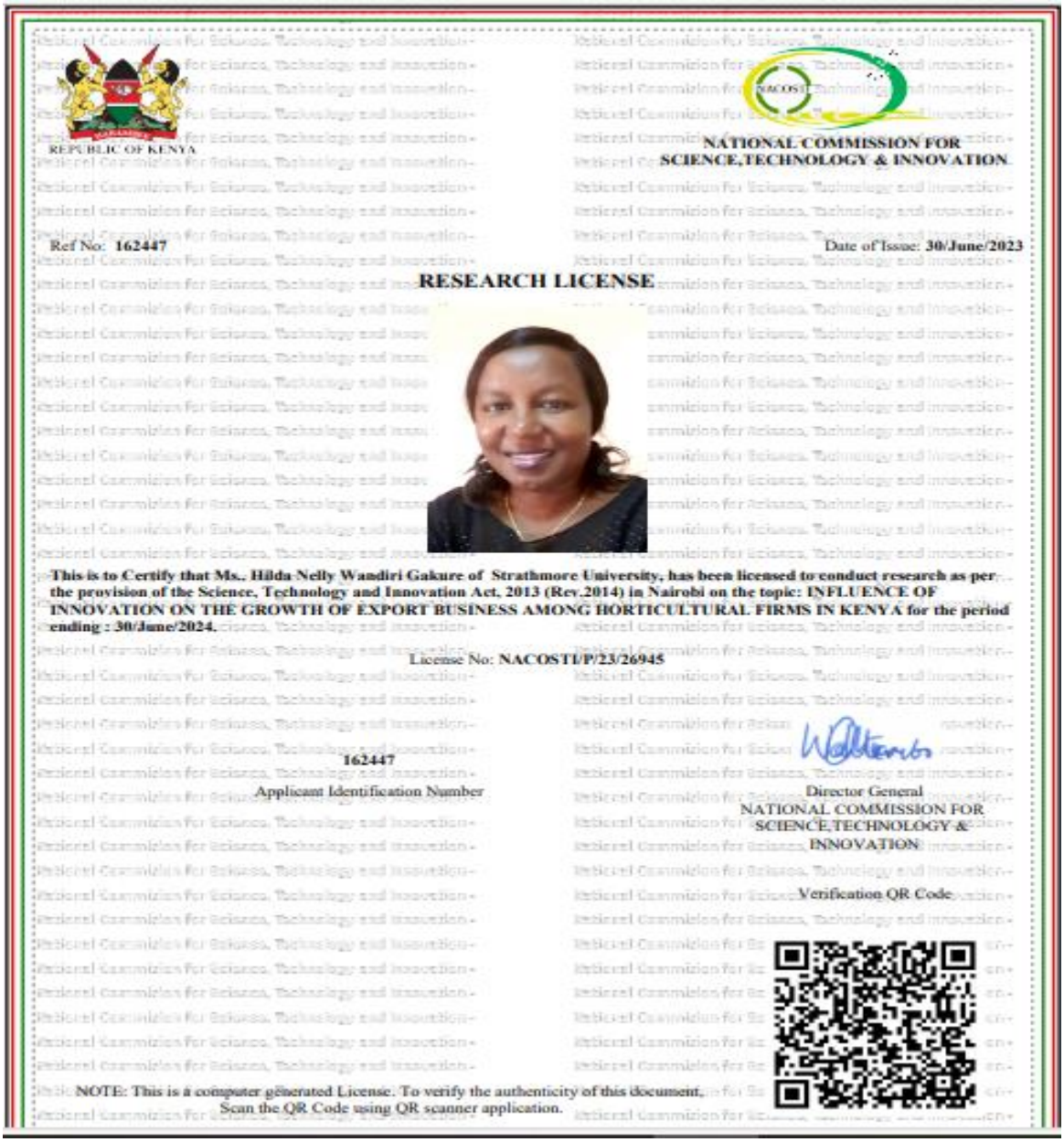
Strathmore University Institutional Scientific and Ethical Review Committee (SU-ISERC)

Strathmore UNIVERSITY

Final Decision

This is to certify that the application for ethics clearance submitted by:
Principal Investigator: Mrs. Gakure, Hilda Nelly Wandiri WANDIRI
Reference number: SU-ISERC1775/23
For Study: "INFLUENCE OF INNOVATION ON THE GROWTH OF EXPORT BUSINESS AMONG HORTICULTURAL FIRMS IN KENYA"
Was reviewed and received the following status: "approved"
Reviewer Comments
The SU-ISERC wishes you all the best with this research undertaking.
06 June 2023 15:33:20

Appendix V: NACOSTI Research Permit



REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **162447**

Date of Issue: **30/June/2023**

RESEARCH LICENSE

This is to Certify that Ms., Hilda Nelly Wandiri Gakure of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: INFLUENCE OF INNOVATION ON THE GROWTH OF EXPORT BUSINESS AMONG HORTICULTURAL FIRMS IN KENYA for the period ending : 30/June/2024.

License No: **NACOSTI/P/23/26945**

162447

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013 (Rev. 2014)
Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was the established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

CONDITIONS OF THE RESEARCH LICENSE

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way;
    i. Endanger national security
    ii. Adversely affect the lives of Kenyans
    iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
    iv. Result in exploitation of intellectual property rights of communities in Kenya
    v. Adversely affect the environment
    vi. Adversely affect the rights of communities
    vii. Endanger public safety and national cohesion
    viii. Plagiarize someone else's work
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