

## Effect of Sustainable Supply Chain Management on Entrepreneurial Success in Rwanda

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### Abstract

This study entitled “Effect of sustainable supply chain management on entrepreneurial success” was carried out in Musanze district. The study sought to examine the effect of raw materials sourcing on entrepreneurial success in Musanze district; to examine the effect of supply chain planning on the entrepreneurial success in Musanze district; to examine the effect of distribution strategies on the entrepreneurial success in Musanze district and to examine the effect of inventory management on entrepreneurial success in Musanze district. The study adopted a descriptive research design and used qualitative and quantitative approaches. Data were gathered by using a likert scale questionnaire that was delivered to a sample size of 99 respondents. Data were analyzed by statistical methods that lead to calculation of means for each statement and the means were presented by using pie charts. The study found that raw materials sourcing leads to enhancement of brand image at a mean of 3.87 representing 22.49%; raw materials sourcing fosters access to new materials or technologies at a mean of 4.26 corresponding to 24.78%, raw materials sourcing scales production at mean of 4.54 corresponding to 26.37%, and raw materials sourcing leads to efficiency maximization and minimizes delay at a mean of 4.54 corresponding to 26.37%. The study revealed that the effective supply chain planning leads to optimization of goods flow at a mean of 3.84 corresponding to 24.53%; supply chain planning leads to a streamlined transportation at a mean of 3.85 representing 24.60%; supply chain planning leads to waste minimization at mean of 3.87 corresponding to 24.73% and supply chain planning leads to reduction of inventory holding costs at a mean of 4.09 corresponding to 26.15%. The study found that effective distribution strategies enhance brand credibility and identity at a mean of 3.83 corresponding to 24.555%; effective distribution strategies enhance customer satisfaction at a mean of 3.88 corresponding to 24.87%; effective distribution strategies limits conflicts and create competitive advantage at a mean of 3.94 corresponding to 25.26% and effective distribution strategies drive sales at a mean of 3.95 corresponding to 25.32%. Findings revealed that inventory management enhances adaptation to market conditions at a mean of 3.89 corresponding to 24.58%; inventory management reduces obsolescence risk at a mean of 3.89 representing 24.58%; inventory management enhances business scalability and resilience at a mean of 3.96 corresponding to 25.03%; and inventory management reduces storage cost, time and labor for stock management at a mean of 4.08 corresponding to 25.80%. Sustainable supply chain management was concluded to be very crucial for entrepreneurial success hence it was recommended to all business managers and owners to adopt sustainable practices in their business. Further research was proposed to be carried out about the challenges hindering the effective use of sustainable supply chain management practices.

### General Introduction

The general introduction provides a comprehensive background for the study, examining sustainable supply chain management from a global perspective down to the local context of Rwanda. It presents the problem statement by contrasting the ideal expectations with the current realities. This section also outlines the research objectives, including both general and specific aims, and formulates the corresponding research questions and hypotheses. Furthermore, it highlights the significance of the study, clarifies its scope, and

details the methodology employed. Additionally, the introduction explains the rationale behind selecting the study, discusses measures taken to ensure reliability and validity, and concludes by outlining the organization of the entire research.

### **1.1 Background to the study**

Sustainable supply chain management is a very crucial subject in the 21st century. Involving sustainable supply chain management should be incorporating environmental, social and economic factors into every facet of the supply chain ranging from product design and sourcing to transportation and distribution (Kot et al., 2018).

Sustainable supply chain management encompasses a set of managerial practices that prioritize environmental impact, recollect all levels during the complete fee chain for each product and adopt a multidisciplinary point of view that encompasses the overall product life-cycle (Taylor et al., 2015). Sustainable supply chain management is a way of overseeing the movement of products and offerings from their supply to their vacation spot with the objective of minimizing the environmental outcomes of each production and distribution approaches (Copacino, 2019).

Sustainable supply chain management considers the environmental and social repercussions of supply chain activities as addition to cost reduction, quality enhancement and efficiency improvements as reported by Zeng et al. (2017). Globally, strong companies are implementing various sustainable chain management practices to bolster their sustainable advantages (Olubusola Odeyemi et al., 2023). Through a development of strong and sustainable supply chain, firms are able to reduce expenses, strengthen risk management skills and identify new revenue streams and enhance their brand value as well (Brandenburg et al., 2014).

According to Khalid & Seuring (2019), sustainability has emerged as a critical concern for businesses lately prompted by worries regarding climate change, limited resources and social inequality (Khalid & Seuring, 2019). In recent times, there has been a rise in environmentally conscious consumers who are demanding that companies behave responsibly and ethically which has resulted in a heightened focus on sustainable supply chain management. In addition, there has been a surge in environmental advocacy groups and governments have introduced environmental regulations aimed at safeguarding the environment (Sauvé et al., 2016).

According to Khan et al. (2023), sustainable supply chain management encompasses working with suppliers and other interested parties to discover opportunities for improvement and promote positive social and environmental results. Implementing sustainable supply chain management strategies offers numerous advantages such as cost reductions, an enhanced reputation and brand value and stronger relationships with stakeholders.

Rwanda has emerged as one of Africa's fastest growing economies driven by significant investments in entrepreneurship and private sector development. The government has made substantial efforts to foster a conducive business environment recognizing entrepreneurship as a key pillar for sustainable economic growth, poverty reduction and job creation (Kagwisagye & Mulyungi, 2023). Rwanda's success in entrepreneurship is supported by proactive policies and reforms aimed at improving the ease of doing business. The country ranks among the top performers in Africa due to the streamlined business registration process, tax incentives and infrastructure development. Moreover, Rwanda Development Board (RDB) and Business Development Fund (BDF) provide resources training and financial support for entrepreneurs (Kagwisagye & Mulyungi, 2023)

In accordance with Silvestre & Țîrcă (2019), supply chains face challenges in developing and emerging nations as compared to developed countries. However, it is of immense importance for global community to foster the sustainability of supply chains in developing countries. Consequently, it is highly significant to conduct researches about how to promote the dynamic potentials of supply chains so that companies get a sustainable competitive edge in economic, environmental and social aspects as a result of a skillful understanding of supply chain dynamics (Mugoni et al., 2024). This study aims to evaluate the influence of sustainable supply chain management on entrepreneurial success.

### **1.2. Problem statement**

Entrepreneurial success is of a fundamental role in promoting Rwandan economic development as it fosters job creation, poverty alleviation and sustainable economic growth (Kagwisagye & Mulyungi, 2023). Despite this, a great number of entrepreneurs encounter challenges in maintaining a long-term business achievement

resulting from a scarce of supply chain management skills such as poor infrastructures, high procurement costs and limited access to sustainable supply chain practices. Hence, increased operational expenditures, reduced profitability and a compromised market competitiveness.

It has been identified that sustainable supply chain management remains a strategic approach to improve business success through focusing on environment friendly practices, ethical sourcing and efficient use of natural resources (Khalid & Seuring, 2019). While global studies have shown a positive correlation between sustainable supply chain management (SSCM) practices and business success, limited research exists on how these practices influence entrepreneurial success in Rwanda's unique economic and policy context (Lynch & Ferasso, 2023).

Despite the government's efforts to promote entrepreneurship through initiatives like Made in Rwanda and financial support programs, the adoption of sustainable supply chain practices remains low among small and medium enterprises (SMEs) capital (Siems et al., 2023). Many entrepreneurs lack the knowledge, resources and support systems necessary to integrate sustainability into their supply chains effectively.

This research intends to address this gap by investigating the effect of sustainable supply chain management on entrepreneurial success in Rwanda. Specifically, it will explore how SSCM practices impact business profitability, market competitiveness and long-term sustainability for Rwandan entrepreneurs. The findings will provide insights to policy-makers, entrepreneurs and supply chain managers on the importance of sustainability for business growth in Rwanda. Thus, this research aims at analyzing the effect of sustainable supply chain management on entrepreneurial success in Musanze district.

### **1.3 Objectives of the research**

#### **1.3.1. General research objective**

The general objective of this research was to examine the effect of sustainable supply chain management on entrepreneurial success in Rwanda.

#### **1.3.2 Specific objectives of the study**

The specific objectives of this research were as follows:

- a) To examine the effect of raw materials sourcing on entrepreneurial success in Musanze district.
- b) To examine the effect of supply chain planning on the entrepreneurial success in Musanze district.
- c) To examine the effect of distribution strategies on the entrepreneurial success in Musanze district.
- d) To examine the effect of inventory management on entrepreneurial success in Musanze district.

### **1.4. Research questions**

This research sought to answer the questions below:

- a. What would be the effect of raw materials sourcing on entrepreneurial success in Musanze District?
- b. What is the effect of supply chain planning on the entrepreneurial success in Musanze district?
- c. What is the effect of distribution strategies on the entrepreneurial success in Musanze district?
- d. What is the effect of inventory management on entrepreneurial success in Musanze district?

### **1.5. Research Hypotheses**

These hypotheses below guided the research and they were tested at 0.05 significance level

- a. There could be effect of raw materials sourcing on entrepreneurial success.
- b. Supply chain planning could have a significant effect on the entrepreneurial success.
- c. There could be a great relationship between distribution strategies and the entrepreneurial success.
- d. Inventory management could have a strong effect on entrepreneurial success.

### **1.6. Choice of the study**

This research topic has been chosen since Rwanda has positioned itself as a hub for innovative business in Africa. Hence, understanding factors contributing to entrepreneurial success can provide insights for policymakers to design targeted interventions and supportive policies for entrepreneurs. This topic helped to raise awareness about eco-friendly and socially responsible entrepreneurship for sustainable development.

## **1.7. Significance of the study**

### **1.7.1 Personal interest**

The current study equipped the researcher with relevant knowledge and practical skills about sustainable supply chain management. The study enabled the researcher to develop capabilities in terms of enterprise management.

### **1.7.2 Academic interest**

This study was being done to get a master's degree in Enterprise and SME's management. It offered a good opportunity to understand well the future career of enterprise manager.

## **1.8 Delimitation of the study**

This research was carried out in Rwanda, Province of North in Musanze district. Data were gathered from manufacturing enterprises located in Musanze district. The data that were used in this study accounts for fiscal year 2023-2024.

## **1.9 Research Methodology**

This research adopted a descriptive research design and used quantitative and qualitative approaches. It was quantitative since the researcher gathered information that can be expressed in terms of numbers. It focused on counting and building statistical representation of the information that was collected. This made the research objective as it seeks to precise measurement. Its qualitative nature relied on gathering information that relates to the appreciation feeling ideas attitudes and thereafter their meaning and interpretation. This made the research subjective despite it describes the topic under study completely. The target population was 6178 individuals operating in Musanze district. The sample size was calculated by using Taro Yamane's formula:  $n = \frac{N}{1+N e^2}$ . The sample size was 99 as given by the formula. To reach respondents, a stratified purposive sampling method was used. The study employed the Statistical Package for Social Sciences (SPSS) to manage tasks such as editing, coding, classifying, and tabulating the collected data, transforming it into frequencies and percentages to facilitate clarity and interpretation.

## **1.10. Reliability and validity**

To check the reliability of questionnaires, researcher delivered them to respondents at different times and detect whether the information provided at different intervals of time would be almost similar; then researcher approved that the instrument was reliable.

Research instruments recalled for findings that would match with the reality. Researcher elaborated questionnaires and handed them to the supervisor for a check-up of their validity and appropriateness. After supervisor's confirmation, they were delivered to respondents to collect data.

## **1.11. Ethical consideration**

The researcher needs to observe the principles of ethics during the research process due to some respondents may be exposed to dangers or harm once their opinions are known by their managers or leaders. Therefore, no need to violate ones' rights for the purpose of getting knowledge or information.

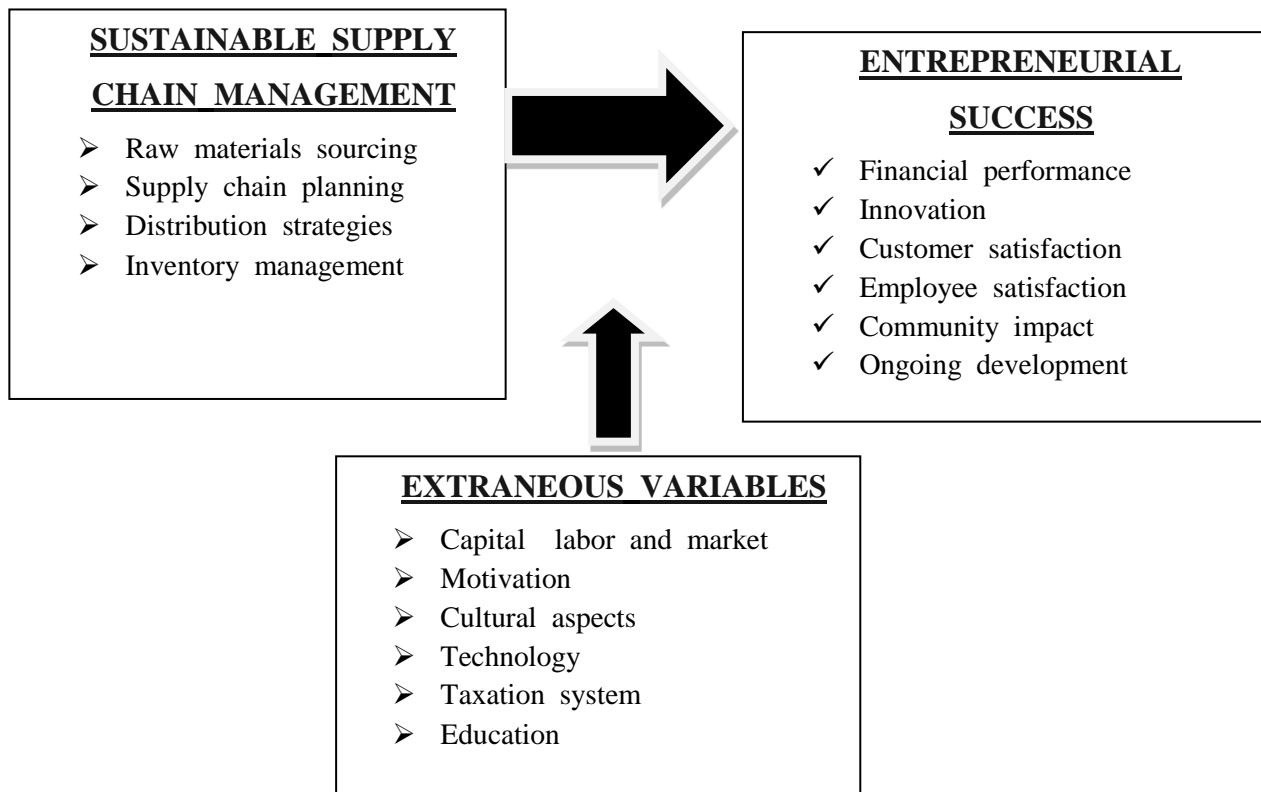
Thus, there should be establishment of an informed consent to detect whether respondents are willing to participate in the research process without being forced to do so. For the fact that it seems almost impossible to determine the kind of danger respondents may experience, names of respondents need to be changed into codes in order to protect them from any harm or embarrassment their superiors may apply to them.

Names of respondents remained anonymous in research and was voluntary. Anyone who felt discomfort or interest was able to withdraw at any time throughout the research process. The researcher held a clearance letter from DVCAR's office which helped to access a number of respondents from Musanze district.

### 1.10 Conceptual framework

INDEPENDENT VARIABLE

DEPENDENT VARIABLE



The diagram above shows the connection between the research variables. The conceptual framework reveals the relationship between independent variable and dependent variable under the drive of extraneous factors. The sustainable supply chain management is independent variable in this study and it is made variables like raw materials sourcing, supply chain planning, distribution strategies and inventory management. The entrepreneurial success is identified through financial performance, innovation, customer satisfaction, community impact, ongoing development and employee satisfaction. The contribution of sustainable supply chain management to entrepreneurial success is driven by a number of extraneous variables like capital, labor, market, motivation, cultural aspects, technology, taxation system and education.

### 1.11 Organization of the study

This research work was structured into five chapters whereby chapter one deals with general introduction; chapter two focused on review of related literature; chapter three addressed research methodology; chapter four tackled results and discussions and conclusion and recommendations were drawn in the fifth part of this research work.

#### Literature Review

This part deals with the definition of key terms especially supply chain, entrepreneurial success, raw material and inventory management. This second part of this dissertation also highlights theories regarding the effect of raw materials sourcing, distribution strategies, supply chain planning and inventory management on entrepreneurial success. The part shows also the theoretical framework, empirical studies and research gap as well.

### 2.1 Definition of key terms

#### 2.1.1 Supply chain

A supply chain constitutes an interconnected network of organizations and individuals engaged in the creation and distribution of a product or service. Key components within this network include manufacturers, suppliers, warehouses, logistics providers, distribution centers, and retail outlets, all collaborating to ensure efficient product flow from origin to end consumer (Janvier-James, 2011).



### **2.1.2 Entrepreneurial success**

Entrepreneurial success is a multifaceted concept that goes beyond simple financial gains. It encompasses achieving a variety of goals that are personally meaningful to the entrepreneur, including creating a valuable business, achieving financial stability, and making a positive impact on society (Inegbedion, 2022).

### **2.1.3 Raw material**

Raw materials are the basic inputs that a business needs to produce its products. For manufacturers, this can include items like metals, chemicals, textiles, or other materials that are transformed into finished goods. Effective management of raw materials is essential to avoid production delays due to shortages, as well as to minimize excess stock that ties up working capital (Sukiennik & Kowal, 2022).

### **2.1.4 Inventory management**

Inventory management refers to the systematic process of overseeing and controlling the flow of goods within an organization. It involves tracking raw materials, work-in-progress (WIP), and finished products from the point of procurement or production through to sale or delivery. The primary objective is to maintain optimal inventory levels ensuring that the right quantity of stock is available at the right time to meet customer demand, while minimizing carrying costs, avoiding stockouts, and preventing overstocking. Effective inventory management ensures that a business can maintain operational efficiency, reduce costs, and provide the right products to customers without disruption (Savitha, 2023).

## **2.2. Theoretical framework**

A theoretical framework serves as the underlying structure of a study, offering a perspective for analyzing and interpreting a particular phenomenon. It enables researchers to contextualize their results and relate them to existing knowledge within the discipline.

### **2.2.1 Effect of raw materials sourcing on entrepreneurial success**

Raw materials have always been a key factor in supply chain management, playing a crucial role in product diversification and strengthening a company's competitive advantages (Prakash & Felix, 2024). Therefore, raw materials are regarded as fundamental to sustainable economic development and the success of advanced product lines and diversification strategies. Siems et al. (2023) emphasizes that to enhance the effectiveness of supply chain management, enterprises must integrate sustainability considerations, typically assessed through social responsibility, environmental impact, and economic performance (Sembiring et al., 2020).

Supply chain management plays a vital role in enhancing business performance by coordinating interactions among manufacturers, suppliers, and customers. With the growing demand for diverse and high-quality products, companies are compelled to rapidly adapt and improve their production processes to meet evolving customer expectations. The sourcing of raw materials has been shown to have a positive and significant impact on enterprise performance. Effective strategic sourcing typically follows a six-step methodology: defining company requirements, gathering and analyzing data, developing a sourcing plan, obtaining necessary approvals, managing sourcing contracts, and overseeing supplier relationships (Prakash & Felix, 2024.).

To adapt to changing market conditions, firms have prioritized flexibility, cost efficiency particularly in areas such as delivery and inventory, innovation in products, and the selection of reliable and sustainable suppliers. Consequently, supply chain management has evolved into a strategic asset, enabling businesses to differentiate themselves, strengthen their brand identity, and drive overall success (Gamede & Uleanya, 2019). Moreover, previous research has demonstrated that, in the short term, implementing supply chain management enhances the efficiency of both firm and supplier operations and extends the product life cycle. In the long term, however, all members of the supply chain benefit through improved customer satisfaction and increased market share (Sembiring et al., 2020).

A firm's success has become increasingly dependent on the quality, reliability, and sustainability of its raw material sources. The impact of materials on a country or region is often influenced by the unsustainable sourcing of those materials. This issue typically arises from factors such as geographical limitations,

technological constraints, economic conditions, regulatory challenges, and material-related policies. At the global level, these challenges lead to supply instability manifested through fluctuating source prices, raw material shortages, and environmental concerns (Cortes et al., 2021).

These estimations are based on examining the extent to which the source of raw materials influences the efficiency of firm operations, thereby contributing to the literature on sustainable enterprise growth, as the importance of raw materials has been well-documented (Siems et al., 2023). To gain a deeper understanding of the crucial role raw materials play, numerous studies have focused on assessing the criticality of these materials. Such assessments aim to reduce risks and address concerns related to material sourcing and availability. To be more precise, one significant risk associated with the source of materials in the automobile industry is the limited accessibility of these materials due to various supply constraints (Ilegbinosa & Jumbo, 2015).

The significance of raw materials has become increasingly recognized, alongside the challenges posed by various material-related issues that affect both firm performance and the broader national economy (Ormazabal et al., 2018). Material inputs include raw materials sourced from non-state enterprises. Raw materials have consistently played a critical role in supply chain management, product diversification, and enhancing a company's competitive advantage capital (Siems et al., 2023). Consequently, they are regarded as fundamental to sustainable economic development and pivotal to the success of high-tech product lines and diversification efforts (Rahmije, 2012).

Sourcing raw materials has a profound effect on entrepreneurial success, influencing various aspects of a business. High-quality raw materials are fundamental to producing superior products that meet or exceed customer expectations. This builds a strong brand reputation and fosters customer loyalty (Ramachandra & Vignesh, 2025). Consistent quality in raw materials leads to consistent product quality, which is crucial for maintaining customer trust and avoiding costly recalls or returns. Conversely, poor quality raw materials can compromise the final product, leading to customer dissatisfaction, negative reviews, and ultimately, business failure (Sánchez-Flores et al., 2020).

Reliable and timely access to raw materials ensures smooth production processes, minimizing delays and maximizing efficiency. Cost-effective sourcing directly impacts the profitability of a business. Strategic sourcing can help entrepreneurs secure competitive prices and improve profit margins (Maulini et al., 2022). Fluctuations in raw material prices can significantly affect production costs. Entrepreneurs need to develop strategies to mitigate these risks, such as long-term contracts or diversifying suppliers. Local sourcing, when feasible, can reduce transportation costs and lead times, contributing to better cost management and a more agile supply chain (Olubusola Odeyemi et al., 2023).

Diversifying the supplier base reduces reliance on a single source, mitigating the risk of disruptions due to supplier issues, natural disasters, or geopolitical events. Strong relationships with suppliers can lead to more reliable deliveries, better communication, and potentially early access to new materials or technologies (Saber et al., 2019). Monitoring the supply chain for potential risks and having contingency plans in place is crucial for business continuity. Access to unique or cutting-edge materials can enable entrepreneurs to develop innovative products that stand out in the market, providing a competitive edge (Mugoni et al., 2024).

Sustainable sourcing practices can attract environmentally conscious customers and enhance the brand image, creating a unique selling proposition. A consistent and reliable supply of raw materials is essential for scaling production to meet increasing demand. Strong supplier relationships can support growth by ensuring access to larger quantities of materials as the business expands (Muchenje et al., 2023).

Challenges in raw material sourcing for entrepreneurs include limited financial resources; lack of established relationships; market volatility; quality control and ethical and sustainability concerns. The strategic sourcing and management of raw materials are critical determinants of entrepreneurial success. By focusing on quality, cost-effectiveness, reliability, and ethical considerations, entrepreneurs can build a strong foundation for sustainable growth and a competitive advantage in the market (Carter & Rogers, 2008).

### **2.2.2 Effect of supply chain planning on the entrepreneurial success**

Effective supply chain planning is not just a logistical detail; it is a fundamental driver of entrepreneurial success. It encompasses all the activities involved in transforming raw materials into a finished product and getting it into the hands of the customer, and strategic planning in this area can significantly impact a new

venture's growth and sustainability (Pal, 2023). Supply chain planning helps entrepreneurs optimize the flow of goods, minimizing waste, reducing inventory holding costs, and streamlining transportation. This directly translates to lower operational costs and improved profit margins, crucial for startups with limited capital (Siems et al., 2023).

A clear understanding of material needs and potential volumes through planning empowers entrepreneurs to negotiate better prices and terms with suppliers (Luthra et al., 2017). Proactive planning identifies potential bottlenecks in the production or distribution process, allowing entrepreneurs to address them before they cause costly delays. Effective planning ensures products are available when and where customers need them, leading to higher customer satisfaction. For a new business, positive initial experiences are vital for building a loyal customer base (Pal, 2023).

Careful planning minimizes errors in order fulfilment, reducing returns and enhancing the customer experience. Supply chain planning allows entrepreneurs to forecast demand and adjust production and inventory levels accordingly, preventing stockouts or overstocking and ensuring they can meet customer needs promptly (Dey et al., 2022). Planning helps in designing efficient workflows for procurement, production, warehousing, and distribution, making the entire operation smoother and more productive. Strategic inventory planning prevents tying up valuable capital in excess stock while ensuring sufficient materials are available to meet production needs and customer demand (Maulini et al., 2022).

Planning production based on forecasted demand ensures efficient use of resources and minimizes idle time. Supply chain planning involves analyzing potential risks such as supplier issues, transportation delays, or natural disasters, allowing entrepreneurs to develop contingency plans (Chowdhury et al., 2022). Diversifying suppliers, optimizing inventory levels, and establishing alternative logistics options through planning can help a business withstand unexpected disruptions. Efficient supply chain planning can reduce the time it takes to bring a product to market, providing a crucial advantage for startups looking to capitalize on emerging trends (Cortes et al., 2021).

A well-planned supply chain allows a business to respond quickly to changing market conditions and customer demands, a key differentiator in dynamic entrepreneurial environments (Le, 2022). Consistent product availability and reliable delivery, enabled by effective supply chain planning, contribute to a positive brand image and customer trust. A well-articulated supply chain plan shows investors that the business has a clear path for growth and can handle increasing demand efficiently. A robust supply chain strategy mitigates operational risks, making the venture more attractive to potential investors (Mugoni et al., 2024).

Supply chains are extremely pressured by buyers' requirement to reduce prices, deliver on quality and ensure reliable supply, keeping resource-constrained suppliers out of the chain, particularly in emerging economies (Tsai et al., 2021). In essence, supply chain planning provides the roadmap for how an entrepreneurial venture will deliver value to its customers efficiently and reliably. It is a proactive approach that lays the groundwork for sustainable growth, profitability, and a strong competitive position in the market. Neglecting this critical aspect can lead to operational inefficiencies, customer dissatisfaction, and ultimately, hinder the success of the entrepreneurial endeavour (Carter & Rogers, 2008).

### **2.2.3 Effect of distribution strategies on the entrepreneurial success**

Distribution strategies are the pathways chosen to get product or service into the hands of customers. The effectiveness of these strategies has a direct and significant impact on entrepreneurial success (Tanco et al., 2021). Choosing the right distribution channels can determine the reach, customer experience, cost structure, and ultimately, profitability and growth. Selecting appropriate channels dictates the size and nature of potential customer base. For example, an online-only strategy limits reach to those with internet access and digital literacy, while a multi-channel approach can broaden audience significantly (Muchenje et al., 2023). Effective distribution ensures the product is available where the target customers are looking for it, facilitating customer acquisition (Dastgerdi, 2012). A well-placed physical store, a user-friendly e-commerce platform, or strategic partnerships can all drive sales. Poor distribution can lead to missed sales opportunities and hinder growth, even if the product is excellent. If customers can't easily find or access the offering, they are likely to turn to competitors (Dastgerdi, 2012).

Convenience and accessibility are key drivers of customer satisfaction. The chosen distribution channels directly impact how easy it is for customers to purchase product or service. The distribution process itself forms part of the overall customer experience (Carter & Rogers, 2008). Factors like delivery speed, ease of



returns, and the professionalism of intermediaries all contribute to how customers perceive the brand. A seamless and positive distribution experience fosters customer loyalty and encourages repeat business, which is crucial for long-term entrepreneurial success. Conversely, a frustrating distribution process can lead to negative reviews and customer churn (Kruja, 2013).

Different distribution channels have distinct cost structures. For example, direct sales often require higher upfront investments in infrastructure but provide greater control over profit margins. Indirect channels might have lower initial costs but involve sharing profits with intermediaries (Bui et al., 2020). Optimizing distribution costs is essential for maintaining healthy profit margins, especially for startups with limited resources. Choosing the most cost-effective channels that still meet customer needs is crucial. Inefficient distribution can lead to high logistics costs, excessive inventory holding, and ultimately, reduced profitability (Carter & Rogers, 2008).

The chosen distribution channels can influence how the brand is perceived. Selling luxury goods through high-end boutiques reinforces a premium image, while distributing through discount retailers might position the brand as more affordable. Consistency across all touchpoints, including distribution, is vital for building a strong and coherent brand identity. Strategic partnerships with reputable distributors can enhance your brand's credibility and reach (Shekarian et al., 2022).

The scalability of the chosen distribution channels will impact the ability to grow. An e-commerce platform can often scale more easily than a network of physical stores. Planning the distribution strategy with future growth in mind is essential. Choosing flexible and adaptable channels will allow to expand the reach as your business grows. Limitations in the distribution network can become a bottleneck to expansion and prevent from capitalizing on market opportunities (Sembiring et al., 2020).

Innovative distribution strategies can create a unique competitive advantage. Thinking of companies that pioneered direct-to-consumer models or leveraged social media for sales is of great value. Exclusive distribution agreements can provide a temporary advantage by limiting competition within specific channels. A superior distribution network can be difficult for competitors to replicate and can be a significant source of long-term success (Cortes et al., 2021).

Previous studies have revealed that export failure is largely attributed to inefficiencies in processing activities especially within the distribution channel rather than other contributing factors. Key aspects of distribution channels explored in earlier research include member affiliation, coordination and management, conflict resolution, sales and profit performance, information sharing, as well as trust and commitment. All these elements are considered essential for enhancing the performance of channel members (Maulini et al., 2022).

In conclusion, distribution strategy is not an afterthought; it is a fundamental element of business model. Entrepreneurs must carefully consider their target market, product characteristics, cost constraints, and growth ambitions when selecting and implementing their distribution channels. A well-defined and effectively executed distribution strategy can be a powerful engine for entrepreneurial success, driving sales, enhancing customer satisfaction, and building a sustainable competitive advantage (Pal, 2023).

#### **2.2.4 Effect of inventory management on entrepreneurial success**

Inventory management entails making decisions that balance the fundamental trade-offs between a firm's objectives, costs, and various constraints. According to the Economic Order Quantity (EOQ) theory, firms should maintain an inventory level that minimizes the combined costs of holding and ordering stock (Kuckertz & Wagner, 2010). Thus, inventory management is vital for ensuring an effective and efficient firm. It plays a crucial role in determining the optimal quantity of materials and goods a company should hold at any given time. Poor inventory management can lead to significant financial challenges, including increased holding costs, stockouts, and lost sales (Das, 2018). Inventory management is of high importance in financial management decision. This is because excess or shortage of this may bring danger to the company (Madaleno & Vieira, 2020).

The primary objective of inventory management is to develop and maintain an efficient system that minimizes overall costs associated with inventory. Specifically, it aims to determine the optimal quantity of stock to be ordered as well as the appropriate timing between successive orders, thereby balancing holding costs, ordering costs, and stockout risks to ensure smooth operational continuity and financial efficiency (Zeng et al., 2017).

Excess inventory occupies valuable storage space, increases the risk of spoilage, and imposes financial burdens due to tied-up capital and potential losses. Conversely, insufficient inventory can disrupt business operations by causing delays or halts in production. Effective inventory management is therefore crucial across different departments within a firm, particularly within the supply chain, to safeguard production processes from interruptions caused by shortages of raw materials, components, or finished goods (Abbas & Sağsan, 2019).

Inventory management is essential for a firm as it significantly contributes to enhancing operational efficiency and strengthening the firm's competitive advantage within the market. Effective inventory management involves maintaining an optimal level of stock that aligns with the business's needs at any given time, ensuring resources are neither underutilized nor excessively tied up (Silvestre & Țircă, 2019). Inventory management encompasses the development of a purchasing plan designed to guarantee the timely availability of all necessary items and materials. It also involves monitoring current inventory levels and tracking their utilization to optimize resource allocation and prevent stockouts or overstocking (Manavalan & Jayakrishna, 2019).

Inventory management involves maintaining a firm's stock levels in a way that minimizes costs while aligning with management's objectives and targets. It ensures that all necessary production inputs are available to prevent any disruption in operations, while also keeping operational costs as low as possible without compromising efficiency (Badiezadeh et al., 2018). Inventory management involves the planning, organizing, controlling, and directing of activities to ensure operational efficiency across the firm. These coordinated efforts cover key processes such as procurement, storage, and transportation. Poor inventory management can result in serious financial challenges for the organization (Alkhuzaim et al., 2021).

Effective inventory management is a cornerstone of entrepreneurial success, particularly for businesses dealing with physical products. It involves strategically planning, sourcing, storing, and selling inventory to optimize profitability and customer satisfaction (Khaled et al., 2021). Efficient inventory management minimizes the amount of capital tied up in unsold goods, thereby reducing storage costs, insurance, potential spoilage, and the risk of obsolescence. This frees up cash flow for other critical business activities. Accurate tracking and forecasting prevent overstocking, which can lead to markdowns, disposal of expired or outdated items, and significant financial losses (Manzoor et al., 2021).

Implementing strategies like Economic Order Quantity (EOQ) helps determine the most cost-effective order quantities, reducing ordering costs and taking advantage of potential bulk discounts without accumulating excess inventory. Streamlined inventory processes reduce the time and labor involved in managing stock, leading to lower operational overhead (Tsai et al., 2021).

Proper inventory management ensures product availability when customers demand it, preventing stockouts that could result in lost sales and dissatisfied customers who may turn to competitors (Millette et al., 2020). Efficient warehousing and accurate inventory tracking facilitate faster order processing and delivery, thereby enhancing the overall customer experience. Precise inventory data reduces errors in picking and packing orders, which leads to higher customer satisfaction and a decrease in product returns. Effective inventory management is an integral part of the broader supply chain, ensuring a seamless flow of goods from suppliers to customers (Li & Liu, 2019).

For manufacturing businesses, accurate inventory data on raw materials and components allows for efficient production scheduling, minimizing delays and maximizing resource utilization. Organized inventory and clear tracking systems optimize warehouse space and make it easier for employees to locate and retrieve items (Jabbour et al., 2019). Maintaining appropriate safety stock levels helps businesses cope with unexpected surges in demand or delays in the supply chain. Good inventory management practices provide insights into sales trends and customer preferences, allowing entrepreneurs to adapt their offerings and inventory levels to changing market conditions (Kristensen & Mosgaard, 2020).

Diversifying suppliers and optimizing inventory locations can mitigate the impact of localized disruptions like natural disasters or supplier issues. Inventory management systems provide valuable data on sales patterns, popular items, and slow-moving stock, enabling entrepreneurs to make informed decisions about purchasing, pricing, and product development (Genovese et al., 2017). Analyzing historical inventory data and sales trends leads to more accurate demand forecasting, which is crucial for effective inventory planning and overall business strategy. As a business grows, robust inventory management systems and processes are essential for handling increased volume and complexity without compromising efficiency or customer satisfaction (Farooque et al., 2019).

In conclusion, effective inventory management is not merely an operational task; it is a strategic imperative for entrepreneurial success. By optimizing inventory levels and processes, entrepreneurs can control costs, enhance customer satisfaction, improve efficiency, and build a more resilient and scalable business. Neglecting inventory management can lead to significant financial and operational challenges that can jeopardize the long-term viability of the venture.

## **2.3 Theoretical review**

### **2.3.1 Theory of Constraints (TOC)**

The Theory of Constraints (TOC), introduced by Israeli scholar Dr. Eliyahu M. Goldratt, offers a structured methodology for enhancing organizational performance by focusing on the primary factor limiting productivity. This theory highlights the need to pinpoint the core obstacle, often termed the system's bottleneck, and to prioritize efforts in addressing it. By doing so, organizations can implement improvements where they matter most, leading to overall efficiency gains. TOC aims to simplify operations, eliminate inefficiencies, and boost output, which ultimately enhances profitability and customer satisfaction, particularly within supply chains and production systems. (Ikeziro et al., 2019).

The Theory of Constraints (TOC) serves as a valuable framework for systematically evaluating and improving inventory management systems, aligning closely with this study's objective of examining how inventory practices affect organizational efficiency. By applying TOC principles, decision-makers can identify bottlenecks within inventory operations, implement targeted improvements, and thereby enhance overall performance and competitiveness (Pacheco et al., 2021).

### **2.3.2 Resource-Based View (RBV) Theory**

The Resource-Based View (RBV) emerged in the 1980s as a response to the limitations of traditional strategic management models, which often focused too heavily on external market conditions. Foundational ideas behind RBV were outlined in works such as "Strategic Factor Markets: Expectations, Luck, and Business Strategy" and "A Resource-Based View of the Firm". This theory emphasizes that a firm's internal strengths; specifically its unique resources and capabilities; are central to achieving and sustaining a competitive advantage over time. (McGahan, 2021).

Within the scope of this research on inventory management's impact on organizational productivity, the Resource-Based View (RBV) provides a meaningful framework for interpretation. It prompts researchers to examine the internal assets and capabilities that contribute to effective inventory control such as robust tracking technologies, streamlined supply chain operations, skilled personnel, or exclusive tools and systems. By focusing on these internal elements, the study can demonstrate how organizations utilize their unique resources to boost performance and establish a competitive edge (Davis & DeWitt, 2021).

## **2.4 Empirical studies**

Empirical research provides robust evidence that sustainable supply chain management (SSCM) is not merely a socially responsible practice but a strategic imperative that substantially contributes to entrepreneurial success (Siems et al., 2023). SSCM enhances business reputation, reduces operational costs, improves efficiency, fosters innovation, and builds organizational resilience. Increasingly, empirical studies demonstrate a positive and significant relationship between SSCM and entrepreneurial success. Studies encompass various dimensions of both sustainability and entrepreneurial outcomes (Geissdoerfer et al., 2017).

According to Le et al. (2023), the integration of sustainable practices, such as eco-friendly sourcing and waste reduction, can significantly improve a venture's brand reputation. This resonates with a growing segment of environmentally conscious consumers, leading to increased customer loyalty and attracting new markets. Studies highlight that by adopting sustainable practices, entrepreneurs can attract customers who prioritize environmental and social responsibility, thereby boosting their market position (Zhu et al., 2010). SSCM practices often lead to cost savings through reduced waste, optimized resource consumption like water and energy, and minimized penalties for non-compliance with environmental regulations (Siems et al., 2023).. Lean management and just-in-time (JIT) techniques within an SSCM framework contribute to waste reduction and more efficient inventory management. Research indicates that effective SCM can reduce operational costs significantly, leading to improved profit margins for SMEs. For instance, streamlined

green supply chain practices help minimize operational costs by avoiding fines and attracting and retaining customers (Pacheco et al., 2017).

Implementing sustainable practices can greatly improve the competitiveness of enterprises, particularly SMEs. This is achieved through enhanced operational efficiencies, improved resilience against market fluctuations, and strategic market positioning in a landscape where sustainability is increasingly valued. Studies suggest that integrating sustainability into SCM strategies enhances competitive advantage and organizational performance. Adopting sustainable practices not only contributes to long-term environmental goals but also enhances resilience against regulatory changes and market fluctuations (Chowdhury et al., 2022).

Sustainable supply chain practices can foster an entrepreneurial ecosystem that promotes creativity and innovation. The need to find solutions for environmental and social challenges often sparks novel approaches in product design, process optimization, and business models. Research indicates that sustainable and smart supply chain practices can foster the development of the entrepreneurial ecosystem of startups, promoting creativity and innovation among them (Le et al., 2023).

SSCM is positively associated with improved supply chain performance, including better inventory turnover, enhanced customer satisfaction, and increased product availability. Collaboration and mutual coordination with strategic partners (suppliers, distributors) are crucial for successful SSCM, leading to shared resources, better inventory management, and improved product quality. Studies show that sustainable supply chain management is positively associated with supply chain performance and collaboration, which in turn positively affects firm performance (Fontoura & Coelho, 2022).

Sustainable supply chains are often more resilient to disruptions and risks, enabling quicker recovery from unforeseen events. This is particularly important for startups and new ventures that may have fewer resources to withstand shocks. Infrastructure that supports sustainable practices can provide minimal damage to supply chains during disruptions and make them recover quickly to normalcy. Entrepreneurial orientation, which includes innovativeness and proactiveness, also plays a role in enhancing supply chain resilience (Abbas & Sağsan, 2019).

While the immediate financial benefits might not always be direct, empirical studies show that SSCM ultimately leads to improved financial performance, sales, market share, and profitability in the long run. This is often mediated by enhanced environmental and social performance. Studies have demonstrated significant improvements in the financial performance of SMEs resulting from streamlined collaboration among supply chain actors, strategic partnerships, and supplier development (Le et al., 2023). Sustainable supply chain practices (SSCP) have been shown to positively impact economic performance, with social and environmental outcomes frequently serving as mediating factors in this relationship (Dastgerdi, 2012).

Though the benefits of SSCM are clear, SMEs often face specific challenges in integrating sustainable practices due to limited awareness, financial constraints, and lack of trust or coordination with partners. Measuring the comprehensive impact of SSCM on entrepreneurial success can be complex, requiring a holistic approach that considers economic, environmental, and social dimensions. The specific practices and their impact vary significantly across different industries and geographical contexts (Veleva & Bodkin, 2018).

## **2.5 Research gap**

Most of the available research on sustainable supply chain management focuses on large companies that have well-developed supply chains and strong financial support. However, small-scale industries often face different and more serious challenges, such as limited access to suppliers, price sensitivity, and lack of proper sourcing systems (Ramachandra & Vignesh, 2025). There is very little research that specifically looks at how small industries in smaller towns like Musanze manage these issues. Moreover, existing studies rarely explore the practical day-to-day problems small businesses face, such as delays in delivery, transportation issues, lack of government support, and the impact of changing raw material prices (Mura et al., 2020). Few studies also consider how local factors such as workforce availability, infrastructure, and access to finance affect supply chain management. Another gap is the lack of studies that include direct feedback from employees or management in such firms, which is important for understanding real-world sourcing problems (Fahimnia et al., 2015).

Therefore, this study aims to bridge these gaps by focusing on the specific supply chain practices, challenges, and improvement areas, offering insights that can benefit similar small scaled businesses.





## **Research Methodology**

This part deals with the methodology employed in the study. Methodology refers to the overall plan of the study and specific techniques used to collect and analyze data. It encompasses a description of the research location, study design and approaches, population targeted and sample size, methods of sampling, data collection instruments, as well as analysis of data and data interpretation procedures. Additionally, it addresses measures for ensuring reliability and validity, along with ethical considerations.

### **3.1. Description of the study area**

Musanze District is a vibrant and geographically significant district in the Northern Province of Rwanda, widely recognized as the gateway to the Volcanoes National Park. According to the 2022 census, the population of Musanze district is 476,522 residents located in 15 sectors likely Busogo, Gataraga, Shingiro, Kinigi, Nyange, Musanze, Cyuve, Gacaca, Gashaki, Rwaza, Remera, Muhoza, Muko, Kimonyi and Nkotsi. Musanze district is most mountainous, home to a significant portion of the Virunga volcanic chain (Urimubenshi, 2015). It is the most popular tourist destination in Rwanda, primarily because it hosts the Volcanoes National Park, which is famous for its endangered mountain gorillas. Gorilla trekking is a major draw, but the district also offers golden monkey tracking, hiking, caving (Musanze Caves), and cultural experiences (Twahirwa et al., 2023). While tourism is a key driver of its economy, agriculture also plays a significant role, thanks to its highly arable volcanic lands. Irish potatoes are a major crop, and there are opportunities for agro-processing business. Musanze district is a bustling urban center with various dining options, markets, and local crafts. It is also a hub for administrative and commercial services (Urimubenshi & Rhoda, 2011).



Source: mapcarta.com

Figure 1: Map of Musanze district showing all sectors

### 3.2. Study design

Reeves & Reeves (2023) defined research design as a general plan to answer a research question. This research will be descriptive research. The research describes the characteristics of the population or phenomenon being studied (Reeves & Reeves, 2023). For this case, researcher described theories about effect of sustainable supply chain management on entrepreneurial success.

### 3.3. Study approaches

Research approaches include the overall strategies and techniques used in a study, guiding the process from broad assumptions to detailed methods of data collection and analysis. They combine theoretical foundations, strategic planning, and precise methodologies (Mulisa, 2022).

This research employed both quantitative and qualitative approaches. It was quantitative in nature because the researcher collected data that could be quantified and converted into numerical form. The study focused on counting and classifying characteristics, as well as constructing statistical models and figures to explain the observed phenomena. This approach ensured objectivity by emphasizing precise measurement. Its qualitative nature relied on gathering information that relates to the appreciation, feeling, ideas, attitudes and thereafter their meaning and interpretation. This made the research subjective despite it provides complete and detailed description of the study topic.

### 3.4. Research population

A population refers to a group of individuals, objects, or events that share certain characteristics and are the focus of a researcher's study. It can also be described as a collection of people, animals, or items that possess one or more similar attributes (Willie, 2022).

The target population was 6178 individuals operating in Musanze district.

**Table 1: Research population**

| Category      | Male | Female |
|---------------|------|--------|
| Entrepreneurs | 2359 | 3579   |
| Local leaders | 105  | 135    |
| Total         | 2464 | 3714   |

### 3.5. Sample size

To facilitate the work, researcher selected a sample of 99 respondents to represent others by the use of the formula calculus:  $n = \frac{N}{1+N(e^2)}$  where  $e=0.1$  (significance level)

$$\text{Therefore, } n = \frac{N}{1+N(e^2)} = \frac{6178}{1+6178(0.1)^2} = 98.4 \approx 99$$

The sample size for this study consisted of 99 respondents selected from a total of 5,938 entrepreneurs, as determined using Yamane's formula.

The following stratification was done to detect the number of respondents were selected from each category:

**Table 2: Sample size**

| Category      | Male  | Female   | Sampling technique                |
|---------------|---|--|-----------------------------------|
| Entrepreneurs | $\frac{2359 \times 99}{6178} = 37.8 \approx 38$ | $\frac{3579 \times 99}{6178} = 57.35 \approx 57$ | <i>Stratified random sampling</i> |
| Local leaders | $\frac{105 \times 99}{6178} = 1.68 \approx 2$   | $\frac{135 \times 99}{6178} = 2.16 \approx 2$    | Purposive sampling                |
| Total         | 40  | 59   |                                   |

### 3.6. Sources of data

#### 3.6.1 Primary data

Primary data is information gathered directly by a researcher or research team specifically for a particular study or objective. It represents original, unpublished data collected firsthand through methods such as surveys, interviews, observations, or experiments (Schneider et al., 2023).

#### 3.6.2 Secondary data

Secondary data refers to information that has been previously collected, processed, and published by others, rather than obtained firsthand by the researcher. Common sources include government reports, academic journals, market research studies, and other existing datasets (Schneider et al., 2023).

### 3.7 Sampling techniques

#### 3.7.1. Probability sampling

All respondents had equal chance to be selected for sample (Singh & Masuku, 2014). This method was used while selecting entrepreneurs who were used during this research. Stratified Sampling was used and involves splitting entrepreneurs into sectors and then simple random sampling was used to choose members from each sector.

#### 3.7.2. Non-probability sampling:

Non-probability sampling is a method where the likelihood of each individual being chosen for the sample is unknown. One common type is purposive sampling also referred to as judgmental, selective, or subjective sampling where researchers use their own discretion to select participants based on specific characteristics relevant to the study (Taherdoost, 2018). Purposive sampling method was used to select local leaders since they possess relevant information about the effect of sustainable supply chain management on entrepreneurial success.

### 3.8. Data collection techniques

Regardless of the specific research design employed, the researcher should aim to collect both quantitative and qualitative data by using a combination of research instruments such as questionnaires, interviews, observations, and document analysis (Mazhar, 2021).



### **3.8.1. Documentation**

Documentation is a method that involves using both internal and external sources such as memos, emails, annual reports, newsletter articles, and websites to provide deeper understanding of the subject under study or to support other types of evidence (Taherdoost, 2021). For this case, researcher read some books; some annual reports and other data were gathered from websites.

### **3.8.2. Questionnaire**

A research questionnaire is a data collection tool comprising a series of items designed to gather information from participants in a consistent and structured manner (Patel & Patel, 2019). In our research, we will use one type of questionnaire. The questionnaire was made of open and closed questions and was distributed to entrepreneurs.

### **3.8.3. Interview**

An interview is essentially a structured conversation where researchers ask questions and respondents provide responses (Peffer et al., 2007). An interview guide was elaborated for local leaders to ensure the objectivity of this research.

## **3.9. Data processing**

The study's results were generated after data collection by using the Statistical Package for Social Sciences (SPSS) to perform processes such as editing, coding, classification, and tabulation (Reeves & Reeves, 2023). This enabled the conversion of the raw data into frequencies and percentages, facilitating clearer analysis and interpretation (Mazhar, 2021).

### **3.9.1 Editing**

This process involved deletion of unnecessary responses from respondents. It also involved the inspection and editing to remove inconsistency in responses and making necessary corrections of partial or vague answers (Vonnheim et al., 2011). This was done to make sure that the data collected are complete and relevant.

### **3.9.2 Coding**

Coding is converting data into numeric format (Maharana et al., 2022). The information that was gathered was coded and regrouped according to their concepts to reach research objectives.

### **3.9.3 Tabulation**

Tabulation involves organizing raw numerical data into tables to summarize and prepare it for further analysis (Maharana et al., 2022). The edited and coded data was presented in pie charts for an easy interpretation.

## **3.10. Validity and reliability of research tool**

As the researcher collected primary data, it was necessary to evaluate each item for its usefulness and critical adequacy, specifically focusing on validity and reliability. This study concentrated on internal validity, which refers to whether the instrument accurately measures what it is intended to measure (Hayashi et al., 2019).

To check the reliability of questionnaires, researcher delivered them to respondents at different times and detect whether the information provided at different intervals of time was almost similar; then researcher approved that the instrument was reliable.

This research instruments recalled for findings that would match with the reality. Researcher elaborated questionnaires and handed them to the supervisor for a check-up of their validity and appropriateness. After supervisor's confirmation, they were delivered to respondents to collect data.

## **3.11. Ethical consideration**

It is essential for researchers to adhere to ethical principles when conducting a study. This is particularly important because participants may face potential risks or harm, especially if their responses are disclosed to

their superiors. Moreover, the pursuit of knowledge should never come at the expense of violating individuals' rights or compromising their well-being (Mohd Arifin, 2018).

So, researchers must first obtain informed consent, ensuring that participants provide their responses voluntarily and without coercion. Since the potential risks to participants cannot always be fully predicted, it is crucial to protect their identities commonly by using codes or pseudonyms in order to safeguard them from any possible harm or embarrassment, particularly from their superiors. (Bhandari., 2021).

In this study, participants' identities were kept confidential, and they were invited to take part voluntarily. Those who chose not to participate or wished to withdraw were free to do so at any stage of the research process. Additionally, a research clearance letter was delivered to the researcher from the DVCAR, which granted permission to access various respondents.

## Results And Discussions

This chapter presented the study results derived from the information gathered during the study. It provided an analysis and discussions of the findings in relation to the research objectives and questions. The discussion of findings was in line with previous research and according to specific research objectives. The results presented and discussed insinuated on the effects of raw materials sourcing; supply chain planning; distribution strategies and inventory management on entrepreneurial success. Finally, the general contribution of sustainable supply chain management to the entrepreneurial success was highlighted.

### 4.1 Demographic characteristics

In order to detect the respondents' demographic characteristics, gender, age, education background and business location were investigated. The results are presented as below.

#### 4.1.1 Gender

For the sake of knowing the gender of respondents, they were asked about their gender and the information gathered is presented in the pie chart below.

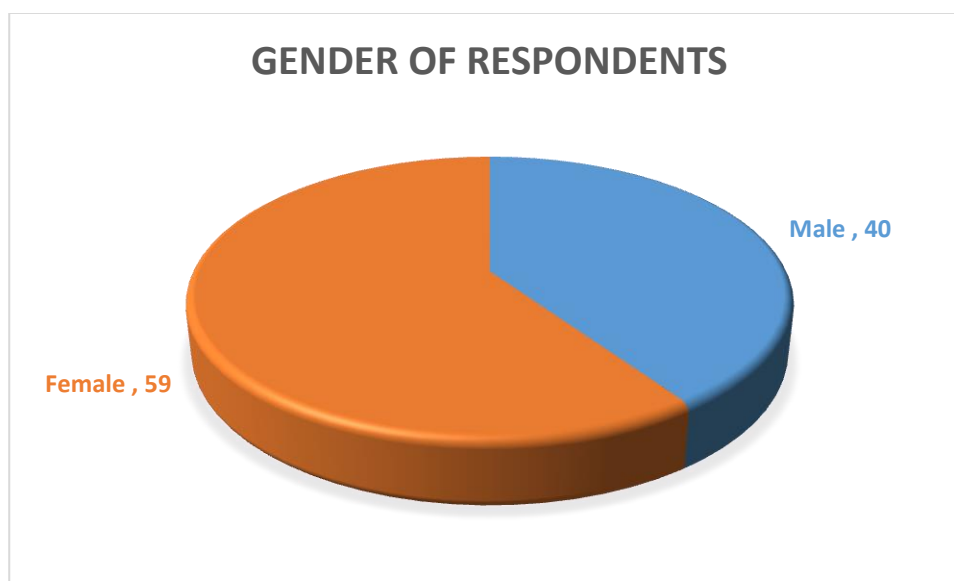
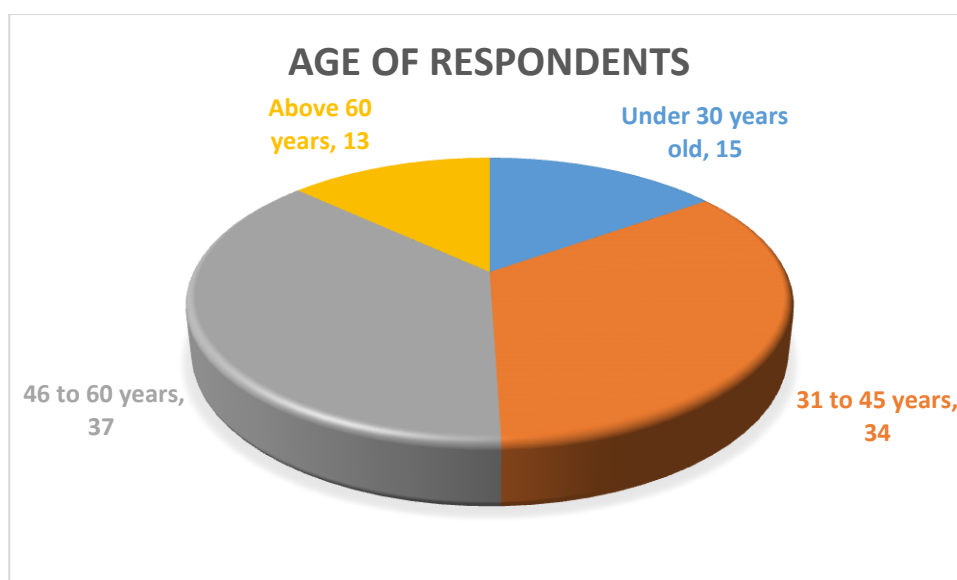


Figure 2: Gender of respondents

Figure 2 shows that 40 respondents corresponding to 40.40% were male while 59 respondents corresponding to 59.60% were female. This finding implies that this study was gender responsive.

#### 4.1.2 Age of respondents

Respondents were asked about their age range. The information provided is presented in figure 3.

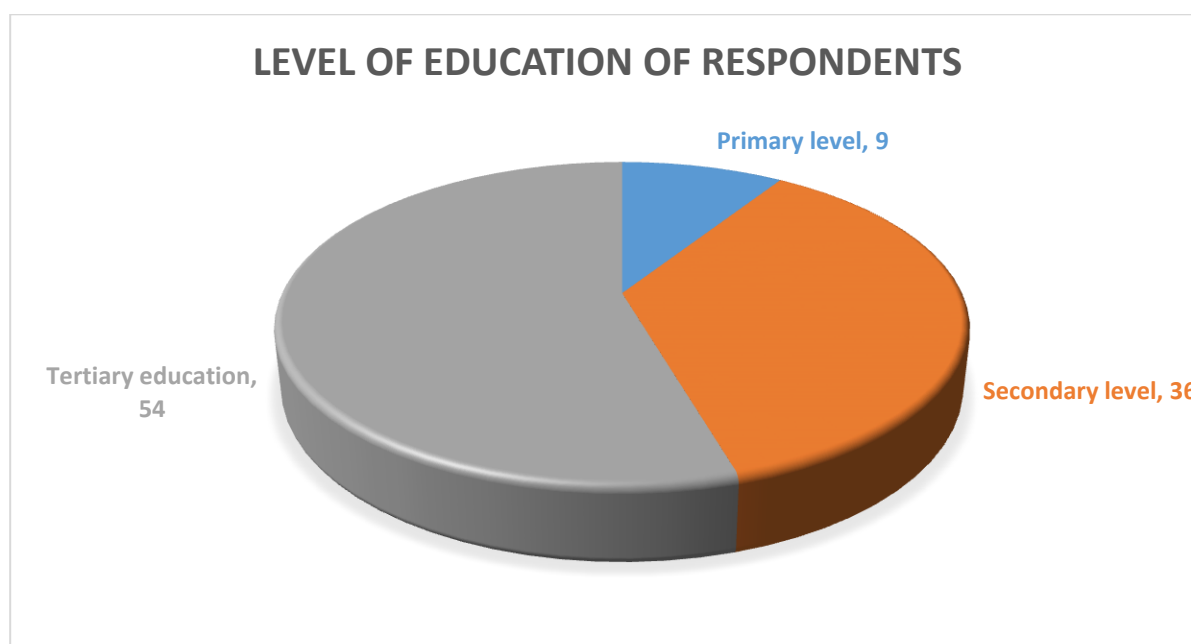


**Figure 3: Age of respondents**

Figure 3 reveals that 13 respondents corresponding to 13.13% were aged above 60 years; 15 respondents corresponding to 15.15% were under 30 years old; 34 respondents corresponding to 34.34% were aged between 31 to 45 years old while 37 respondents corresponding to 37.37% were aged between 46 to 60 years old.

#### 4.1.3 Level of education

In order to know the education background of entrepreneurs, respondents were asked about their level of education. The gathered information is presented as follows.

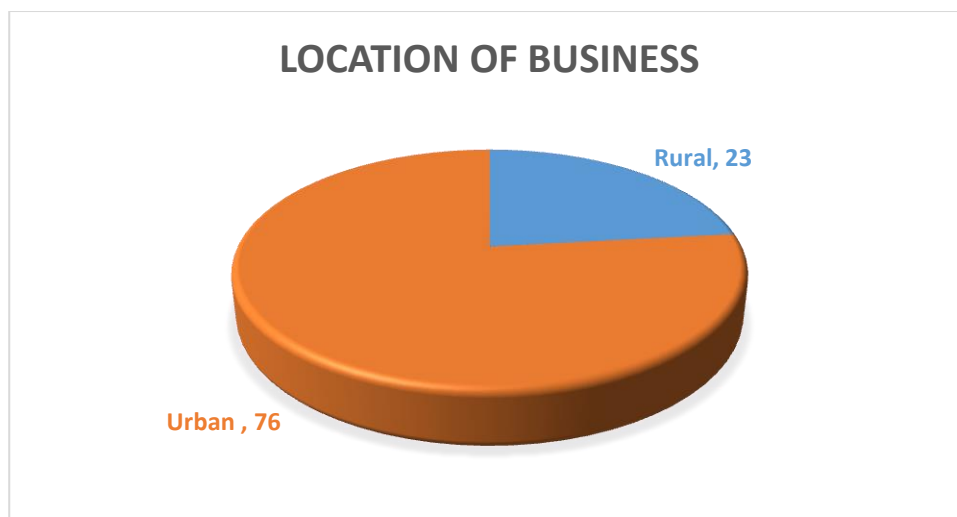


**Figure 4: Education background of respondents**

Regarding the education level of respondents in figure 4, 9 respondents corresponding to 9.09% hold primary level of education; 36 respondents corresponding to 36.36% held secondary level of education while 54 respondents corresponding to 54.55 had tertiary level of education.

#### 4.1.4 Location of business

For the purpose of detecting the location of businesses, respondents were asked about where their businesses are located. The information collected is presented in figure 5.

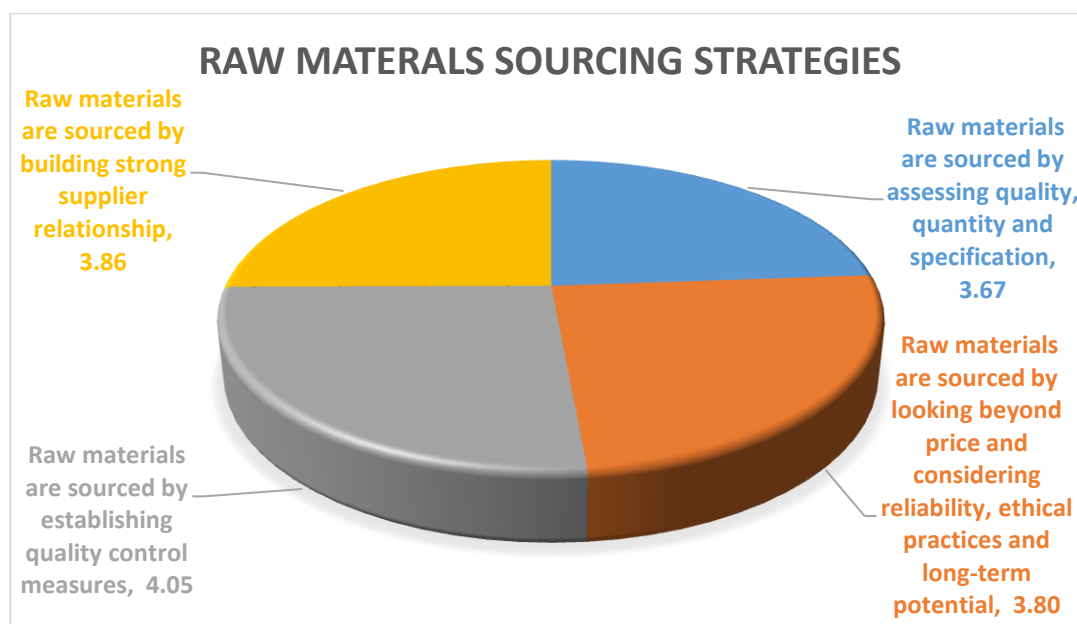


**Figure 5: Location of businesses in Musanze district**

In accordance with the location of business, figure 5 shows that 23 respondents corresponding to 23.23% run their businesses in rural area while 76 respondents corresponding to 76.77% run their businesses in urban area.

#### **4.2 Effect of raw materials sourcing on entrepreneurial success in Musanze district**

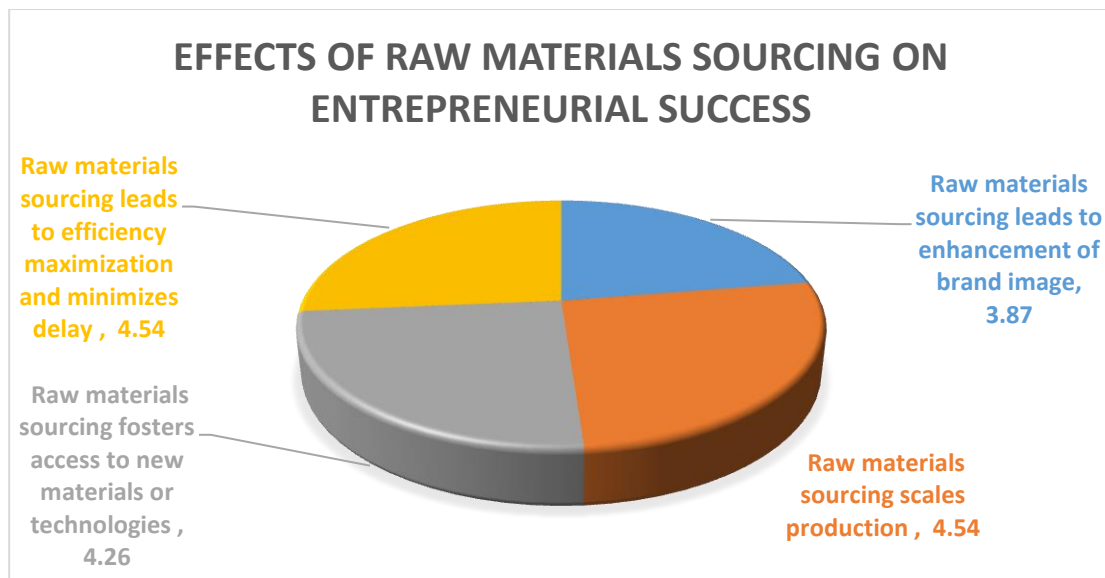
In order to know the effect of raw materials sourcing on entrepreneurial success, the first question was asked to detect strategies used in raw materials sourcing. The gathered information is presented in figure 6.



**Figure 6: Strategies used in raw materials sourcing**

In accordance with data presented in figure 6, it is clear that respondents agreed that raw materials are sourced by assessing quality, quantity and specification at mean of 3.67; raw materials are sourced by looking beyond price and considering reliability, ethical practices and long-term potential at mean of 3.80; raw materials are sourced by building strong supplier relationship at a mean of 3.86 while respondents agreed that raw materials are sourced by establishing quality control measures at the mean equivalent to 4.05. The results are in accordance with Prakash & Felix (2024) who asserted that the origin of raw materials is positively and significantly linked to the performance of businesses. The six-step methodology in strategic sourcing includes defining company requirements, gathering and analyzing data, developing a sourcing plan, obtaining approval, managing sourcing contracts, and overseeing supplier relationships. A second question was asked about the effects of raw materials sourcing on entrepreneurial success. The data collected is presented in figure 7.



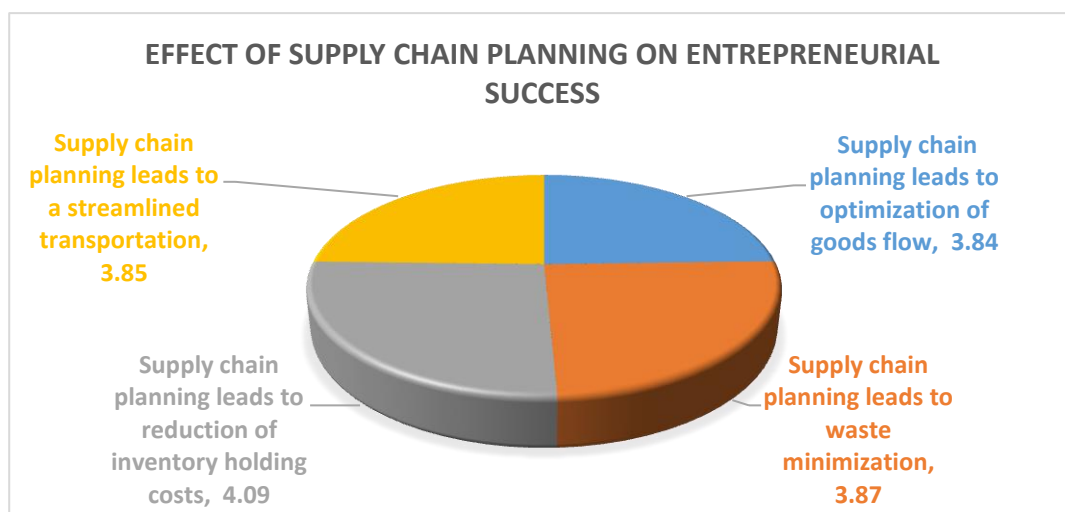


**Figure 7: Effects of raw materials sourcing on entrepreneurial success**

Figure 7 shows the means of agreements with the effects of raw materials sourcing on entrepreneurial success. From the presentation, it is clear that raw materials sourcing leads to enhancement of brand image as revealed by respondents equivalent to the mean of 3.87; raw materials sourcing fosters access to new materials or technologies at the mean of 4.26, raw materials sourcing scales production at the mean of 4.54 and raw materials sourcing leads to efficiency maximization and minimizes delay at the mean of 4.54.

The results in figure 7 are in accordance with Ramachandra & Vignesh (2025) who reported that sourcing raw materials has a profound effect on entrepreneurial success, influencing various aspects of a business. High-quality raw materials are fundamental to producing superior products that meet or exceed customer expectations. This builds a strong brand reputation and fosters customer loyalty. Consistent quality in raw materials leads to consistent product quality, which is crucial for maintaining customer trust and avoiding costly recalls or returns.

#### 4.3 Effect of supply chain planning on entrepreneurial success



**Figure 8: Effects of supply chain planning on entrepreneurial success**

Figure 8 illustrates that the effects of supply chain planning on entrepreneurial success include optimization of goods flow at a mean of 3.84; supply chain planning leads to a streamlined transportation at a mean of 3.85; supply chain planning leads to waste minimization at a mean of 3.87 and supply chain planning leads to reduction of inventory holding costs at a mean of 4.09.

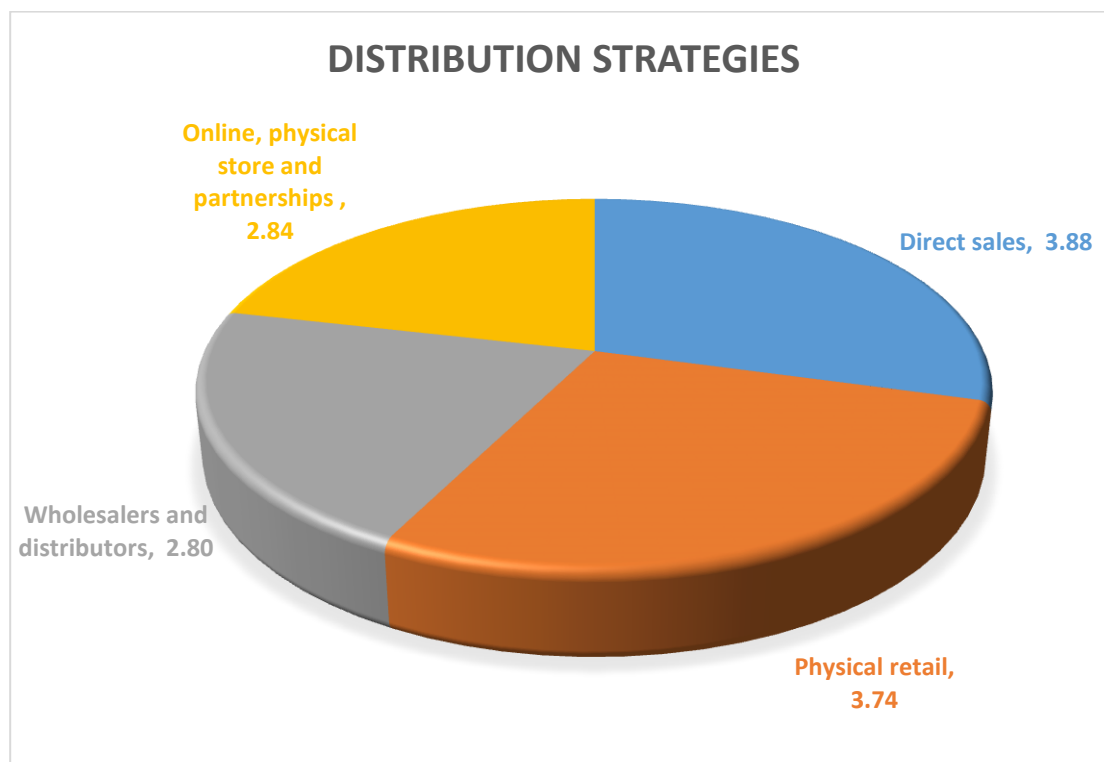
The results align with the findings of Siems et al. (2023), who stated that supply chain planning enables entrepreneurs to optimize the flow of goods by minimizing waste, reducing inventory holding costs, and

streamlining transportation processes. This directly translates to lower operational costs and improved profit margins, crucial for startups with limited capital.

The results are also in accordance with Le (2022) who argued that a well-planned supply chain allows a business to respond quickly to changing market conditions and customer demands, a key differentiator in dynamic entrepreneurial environments. Consistent product availability and reliable delivery, enabled by effective supply chain planning, contribute to a positive brand image and customer trust. A well-articulated supply chain plan shows investors that the business has a clear path for growth and can handle increasing demand efficiently

#### 4.4 Effects of distribution strategies on entrepreneurial success

In order to detect how far distribution strategies affect the entrepreneurial success, a question was asked about strategies adopted by companies in their distribution. The gathered information is presented here in figure 9.



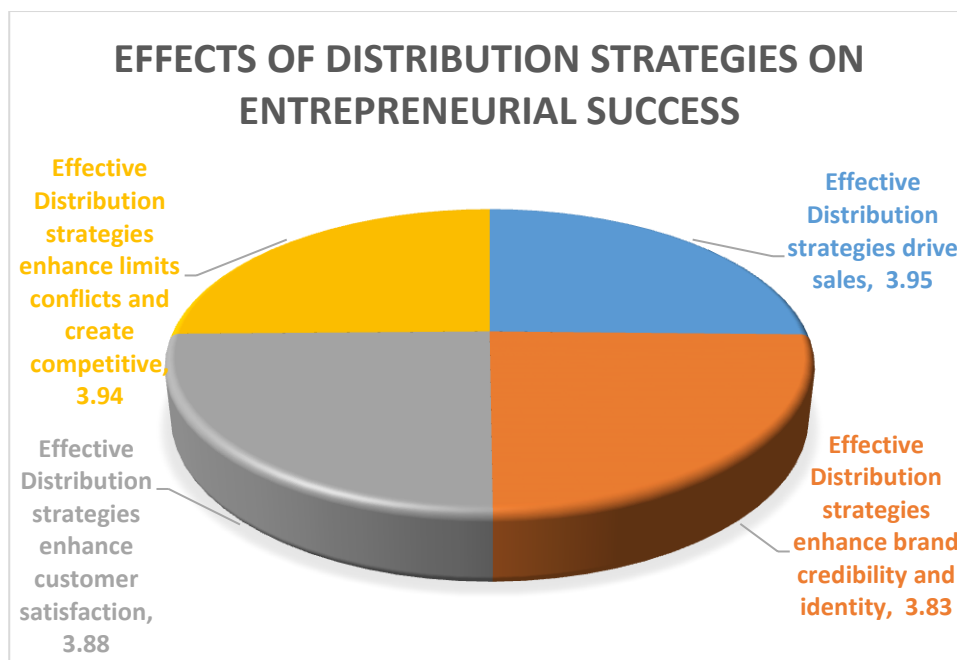
**Figure 9: Distribution strategies adopted by companies in Musanze district**

Figure 9 presents distribution strategies adopted by companies in Musanze district. From the presentation, it is clear that amongst distribution strategies applied there is wholesalers and distributors at the mean pf 2.80; online, physical and partnerships at the mean of 2.84; physical retailing at the mean of 3.74 and direct sales at the mean of 3.88.

These results are consistent with the findings of Bui et al. (2020), who reported that different distribution channels are associated with varying cost structures. According to their study, direct sales often require higher upfront investments in infrastructure but provide greater control over profit margins. In contrast, indirect channels may involve lower initial costs but necessitate sharing profits with intermediaries.

They are also similar to Carter & Rogers (2008) who suggested that optimizing distribution costs is essential for maintaining healthy profit margins, especially for startups with limited resources. Choosing the most cost-effective channels that still meet customer needs is crucial. Inefficient distribution can lead to high logistics costs, excessive inventory holding, and ultimately, reduced profitability.

After detecting distribution strategies adopted in Musanze district, a second question was asked to respondents in order to know the effects of distribution strategies on entrepreneurial success. The results are presented in figure 10.



**Figure 10: Effects of distribution strategies on entrepreneurial success**

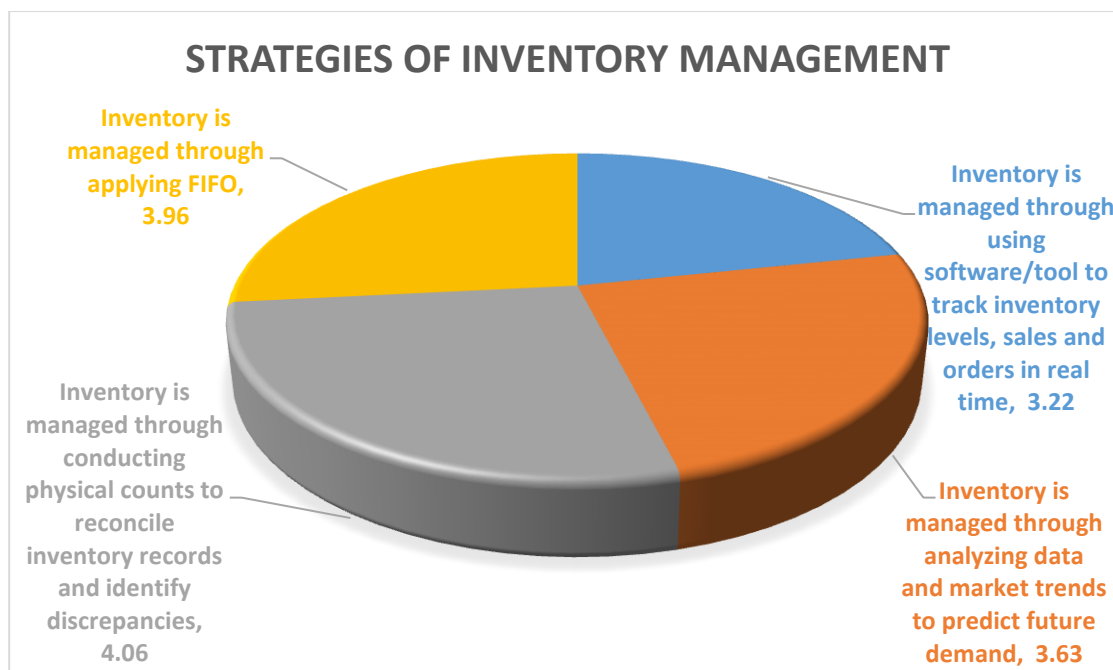
Figure 10 is about the effects of distribution strategies on entrepreneurial success, it is clear that effective distribution strategies enhance brand credibility and identity at a mean of 3.83; effective distribution strategies enhance customer satisfaction at a mean of 3.88; effective distribution strategies limits conflicts and create competitive advantage at a mean of 3.94 while effective distribution strategies drive sales at the mean of 3.95.

These results match with Shekarian et al. (2022) who argued that the chosen distribution channels can influence how the brand is perceived where he said that selling luxury goods through high-end boutiques reinforces a premium image, while distributing through discount retailers might position the brand as more affordable. Consistency across all touchpoints, including distribution, is vital for building a strong and coherent brand identity. Strategic partnerships with reputable distributors can enhance brand's credibility and reach.

The results are similar to Pal (2023) who reported that a well-defined and effectively executed distribution strategy can be a powerful engine for entrepreneurial success, driving sales, enhancing customer satisfaction, and building a sustainable competitive advantage.

#### **4.5 Effects of inventory management on entrepreneurial success**

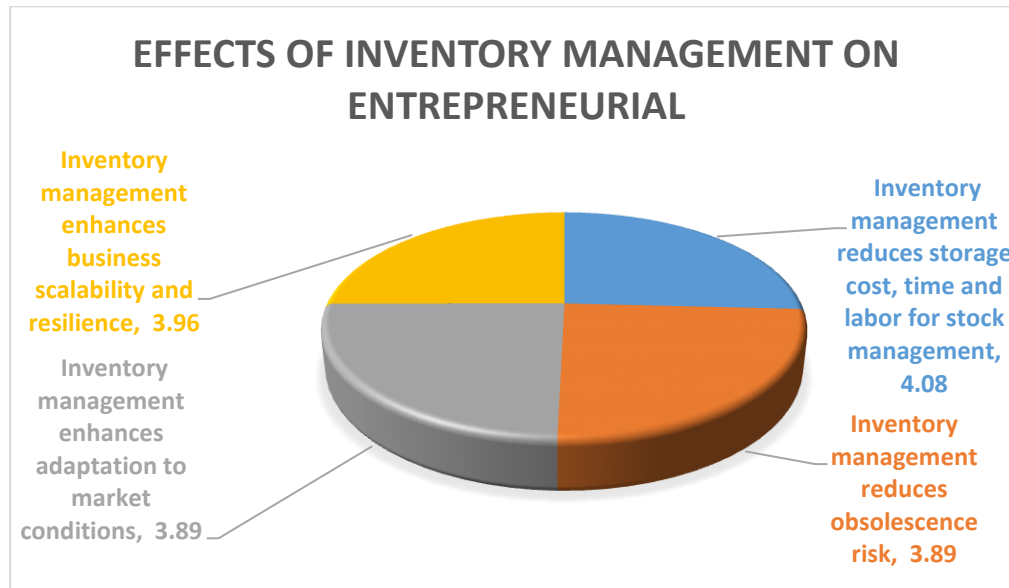
Before sticking to effects of inventory management on entrepreneurial success, a question was asked about strategies used in inventory management. The data collected are presented in figure 11.



**Figure 11: Strategies used to manage inventory**

Figure 11 shows that the strategies used to manage inventory include that inventory management is managed through using software/tool to track inventory levels, sales and orders in real time at a mean of 3.22; inventory is managed through analyzing data and market trends to predict future demand at a mean of 3.63; inventory is managed through applying FIFO at a mean of 3.96 and inventory is managed through conducting physical counts to reconcile inventory records and identify discrepancies at the average mean of 4.06.

A second question was asked to detect the effects of inventory management on entrepreneurial success. The gathered information is presented in figure 12.



**Figure 12: Effects of inventory management on entrepreneurial success**

According to data in figure 12, inventory management enhances adaptation to market conditions at the mean of 3.89; inventory management reduces obsolescence risk at the mean of 3.89; inventory management enhances business scalability and resilience at the mean of 3.96; and inventory management reduces storage cost, time and labor for stock management at the mean of 4.08.

These results are similar to Genovese et al. (2017) who reported that inventory management systems provide valuable data on sales patterns, popular items, and slow-moving stock, enabling entrepreneurs to make informed decisions about purchasing, pricing, and product development.

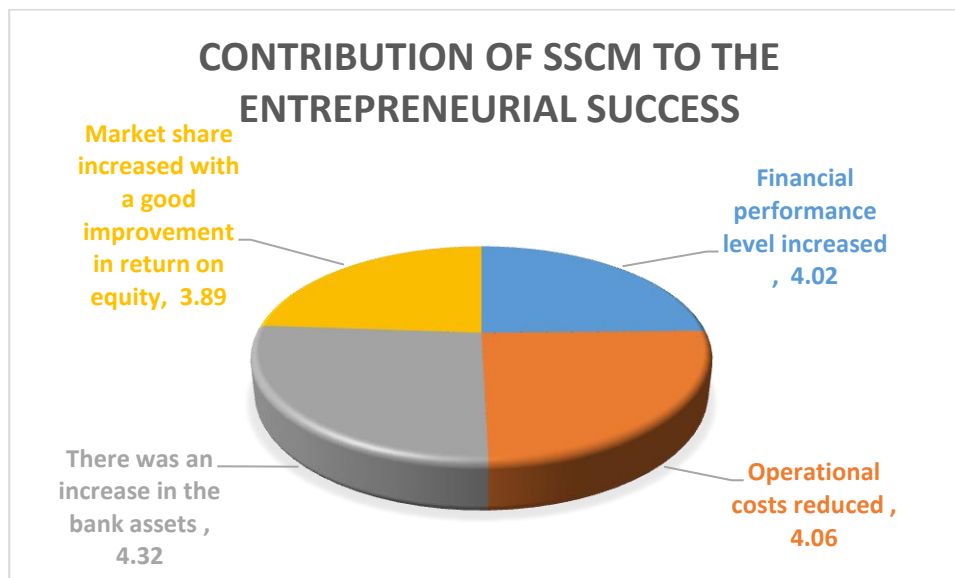
The results also match with Manzoor et al. (2021) who argued that efficient inventory management minimizes the amount of capital tied up in unsold goods, thereby reducing storage costs, insurance, potential



spoilage, and the risk of obsolescence. This frees up cash flow for other critical business activities. Accurate tracking and forecasting prevent overstocking, which can lead to markdowns, disposal of expired or outdated items, and significant financial losses.

#### 4.6 Contribution of sustainable supply chain management to the entrepreneurial success

Finally, a question was asked to detect the contribution of sustainable supply chain management on the general entrepreneurial success. The gathered information is presented in figure 13.



**Figure 13: Contribution of sustainable supply chain management to the entrepreneurial success**

Figure 13 reveals that the contribution of sustainable supply chain management includes market share increased with a good improvement in return on equity at the mean of 3.89; financial performance level increased at the mean of 4.02; operational costs reduced at the mean 4.06 and an increase in the bank assets at the mean of 4.32.

The above results are similar to Chowdhury et al. (2022) who suggested that integrating sustainability into SCM strategies enhances competitive advantage and organizational performance. Adopting sustainable practices not only contributes to long-term environmental goals but also enhances resilience against regulatory changes and market fluctuations.

The results are also in line with Pacheco et al. (2017) who indicated that effective supply chain management (SCM) can significantly reduce operational costs, thereby improving profit margins for small and medium-sized enterprises (SMEs). For example, streamlined green supply chain practices not only help minimize costs but also reduce the risk of regulatory penalties and enhance customer retention by meeting sustainability expectations.

## Conclusion And Recommendations

### 5.0 Introduction

This chapter presents the general conclusion and recommendations of the study. The conclusion is drawn based on the findings discussed in Chapter Four, reflecting the key results of the research. The conclusion was elaborated focusing on the four research variables namely effects of raw materials sourcing on entrepreneurial success; effects of supply chain planning on entrepreneurial success; effects of distribution strategies on entrepreneurial success and the effects of inventory management on entrepreneurial success. Finally, general recommendations were addressed along with suggestion for further study.

### 5.1 General conclusion

Raw materials sourcing was found strategically imperative instead of being a logistical necessity since a well-planned and well-executed sourcing strategy is a powerful engine for entrepreneurial success since raw materials sourcing leads to enhancement of brand image; access to new materials or technologies, scaled production and efficiency maximization and delay minimization. Prioritizing a sustainable raw materials

sourcing enables cost efficiency ensuring product quality, building supply chain resilience, fostering innovation and enhancing brand reputation.

Effective supply chain planning is a critical determinant of an entrepreneur's ability to achieve sustainable growth, profitability and customer satisfaction. Efficiently planned supply chains optimize processing of raw materials to delivering finished products. The study revealed that the effective supply chain planning leads to optimization of goods flow; supply chain planning leads to a streamlined transportation; supply chain planning leads to waste minimization and supply chain planning leads to reduction of inventory holding costs.

Regarding the effects of distribution strategies on entrepreneurial success, the study found that effective distribution strategies enhance brand credibility and identity; effective distribution strategies enhance customer satisfaction; effective distribution strategies limits conflicts and create competitive advantage and effective distribution strategies drive sales. One can conclude that distribution strategies have a profound and direct impact on entrepreneurial success through influencing various critical aspects of a business. It is paramount to carefully select, implement and continually optimize distribution channels.

Findings revealed that inventory management enhances adaptation to market conditions; inventory management reduces obsolescence risk; inventory management enhances business scalability and resilience; and inventory management reduces storage cost, time and labor for stock management. Effective inventory management is absolutely paramount for business success since it acts as a direct determinant of business's financial health, operational efficiency and ability to satisfy customers.

Conclusively, Sustainable supply chain management (SSCM) is a critical enabler of entrepreneurial success in Musanze District. While traditional supply chain elements such as cost, speed, and efficiency remain foundational, the sustainable dimension of SSCM is becoming increasingly essential. For entrepreneurs in Musanze, adopting sustainable practices supports not only profitability and operational efficiency but also long-term resilience, competitiveness, and a positive impact on the community. This approach aligns with Rwanda's national development policies and broader goals of inclusive and environmentally responsible growth. Thus, it is imperative for entrepreneurs to move beyond basic supply chain management to actively integrate sustainability since it empowers the business to be more resilient, cost-effective and socially responsible business leading to entrepreneurial success.

## **5.2 Recommendations**

Based on the research findings and the limitations encountered during this study, the following recommendations are presented for the consideration of relevant stakeholders:

1. To INES-Ruhengeri, it was recommended that there should be facilitation in accessing data that are confidential since some respondents would restrain from providing accurate information.
2. To Ministry of Finance, it was recommended to organize trainings for start-up business so that they may have enough skills regarding sustainable supply chain management.
3. To business owners and managers, they were recommended to apply sustainable practices in their businesses.
4. Further research is proposed to be carried out about The challenges that impede the effective implementation of sustainable supply chain management (SSCM) practices..

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### **Appendix 1: Informed consent**

Dear respondents,

I am a student at INES RUHENGARI in the faculty of economics social sciences and management; I am conducting research with title of **“EFFECT OF SUSTAINABLE SUPPLY CHAIN MANAGEMENT ON ENTREPRENEURIAL SUCCESS IN RWANDA. CASE STUDY OF MUSANZE DISTRICT”**

You were chosen to participate in answering the following questions because you are one of the people who are concerned by this research. I wish you would kindly respond to the questions pointing on given objectives with honesty; the participation is voluntary and of high value.

I sincerely ensure you that there is no subsequent risks after having given your opinions and perceptions about what you will have been asked since the responses in this study will not be individually considered. The information provided will be kept confidentially and will be used only for academic purposes.

If your answers focus on the questions that were asked, you will be highly appreciated.

Thank you very much for your kind and honest consideration to my request

**NYIRABATWARE Marie Grace**

## Appendix 2: Questionnaire designed for entrepreneurs

### I. DEMOGRAPHIC CHARACTERISTICS

- II. Gender:
- III. Male
- IV. Female
- V. Age
- VI. Under 30 years old
- VII. 31 to 45 years
- VIII. 46 to 60 years
- IX. Above 60 years
- X. Education background
- XI. Primary level
- XII. Secondary level
- XIII. Tertiary education
- XIV. Business location
- XV. Rural
- XVI. Urban

### XVII. STUDY RELATED QUESTIONS

1. Please indicate your level of agreement on these statements indicating how raw materials are sourced in your company. Use the rating scale using Likert scale where 5=Strongly agree, 4= Agree, 3= not sure, 2= Disagree and 1=Strongly disagree

| Statements   | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
| Raw materials are sourced by assessing quality, quantity and specification   |   |   |   |   |   |
| Raw materials are sourced by looking beyond price and considering reliability, ethical practices and long-term potential |   |   |   |   |   |
| Raw materials are sourced by establishing quality control measures   |   |   |   |   |   |
| Raw materials are sourced by building strong supplier relationship   |   |   |   |   |   |

Please indicate your level of agreement on the following statement indicating the effect of raw materials sourcing on entrepreneurial success. Use the rating scale using Likert scale where 5=strongly agree, 4= Agree, 3= not sure, 2= Disagree and 1=Strongly disagree

| Statements  | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Raw materials sourcing leads to enhancement of brand image                  |   |   |   |   |   |
| Raw materials sourcing scales production                                    |   |   |   |   |   |
| Raw materials sourcing fosters access to new materials or technologies      |   |   |   |   |   |
| Raw materials sourcing leads to efficiency maximization and minimizes delay |   |   |   |   |   |

Please indicate your level of agreement on the following statement indicating the effect of supply chain planning on entrepreneurial success. Use the rating scale using Likert scale where 5= strongly agree, 4= Agree, 3= not sure, 2= Disagree and 1=Strongly disagree

| Statements  | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Supply chain planning leads to optimization of goods flow           |   |   |   |   |   |
| Supply chain planning leads to waste minimization                   |   |   |   |   |   |
| Supply chain planning leads to reduction of inventory holding costs |   |   |   |   |   |
| Supply chain planning leads to a streamlined transportation         |   |   |   |   |   |

1. Please indicate your level of agreement on the following statement indicating the distribution strategies adopted by your company. Use the rating scale using Likert scale where 5=strongly agree, 4= Agree, 3= not sure, 2= Disagree and 1=Strongly disagree

| Statements                              | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Direct sales                            |   |   |   |   |   |
| Physical retail                         |   |   |   |   |   |
| Wholesalers and distributors            |   |   |   |   |   |
| Online, physical store and partnerships |   |   |   |   |   |

5. Please indicate your level of agreement on the following statement indicating the effect of distribution strategies on entrepreneurial success. Use the rating scale using Likert scale where 5=strongly agree, 4= Agree, 3= not sure, 2= Disagree and 1=Strongly disagree

| Statements  | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Effective Distribution strategies drive sales                                     |   |   |   |   |   |
| Effective Distribution strategies enhance brand credibility and identity          |   |   |   |   |   |
| Effective Distribution strategies enhance customer satisfaction                   |   |   |   |   |   |
| Effective Distribution strategies enhance limits conflicts and create competitive |   |   |   |   |   |

6. Please indicate your level of agreement on the following statement indicating the strategies used to manage inventory. Use the rating scale using Likert scale where 5=strongly agree, 4= Agree, 3= not sure, 2= Disagree and 1=Strongly disagree

| Statements  | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Inventory is managed through using software/tool to track inventory levels, sales and orders in real time         |   |   |   |   |   |
| Inventory is managed through analyzing data and market trends to predict future demand                            |   |   |   |   |   |
| Inventory is managed through conducting physical counts to reconcile inventory records and identify discrepancies |   |   |   |   |   |
| Inventory is managed through applying FIFO  |   |   |   |   |   |

7. Please indicate your level of agreement on the following statement indicating the effect of inventory management on entrepreneurial success. Use the rating scale using Likert scale where 5=strongly agree, 4= Agree, 3= not sure, 2= Disagree and 1=Strongly disagree

| Statements   | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
| Inventory management reduces storage cost, time and labor for stock management |   |   |   |   |   |
| Inventory management reduces obsolescence risk                                 |   |   |   |   |   |
| Inventory management enhances adaptation to market conditions                  |   |   |   |   |   |
| Inventory management enhances business scalability and resilience              |   |   |   |   |   |

8. Please indicate your level of agreement with the following statements regarding the role of sustainable supply chain management in enhancing entrepreneurial success. Use the Likert scale below to express your views where 5= strongly agree, 4= Agree, 3= not sure, 2= Disagree and 1=strongly disagree

| Statements   | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
| Financial performance level increased                              |   |   |   |   |   |
| Operational costs reduced  |   |   |   |   |   |
| There was an increase in the bank assets                           |   |   |   |   |   |
| Market share increased with a good improvement in return on equity |   |   |   |   |   |

### Appendix 3: Interview Designed for local leaders

2. What is your position as local leader?

3. How long have you been serving at this post?
4. How many businesses are operating in your working place?
5. How many new businesses among the above mentioned?
6. Which challenges do business face in your area?
7. Do business have access to enough raw materials?
8. What would be the effect of sourcing raw materials to the entrepreneurial success?
9. How far do businesses implement supply chain planning?
10. How far do supply chain planning affect entrepreneurial success?
11. How far do businesses implement distribution strategies?
12. What would be the effect of distribution strategies on entrepreneurial success?
13. How is inventory management implemented in your working area?
14. What is the effect of inventory management on entrepreneurial success?
15. What is the contribution of sustainable supply chain management on entrepreneurial success?

**Appendix 4: Schedule of the research**

|                      | Submis<br>sion of<br>propos<br>al | Review<br>of<br>related<br>literatur<br>e | Finalizin<br>g<br>literature<br>review | Material<br>s and<br>method<br>& data<br>gatherin<br>g | Data<br>analysis<br>and<br>discussio<br>n of<br>results | Elaboratio<br>n and<br>submission<br>of final<br>thesis | Thesis<br>review<br>publicatio<br>n and final<br>defence |
|----------------------|-----------------------------------|---|--|--|---|---|--|
| December<br>2024     |                                   |   |  |  |   |   |  |
| January 2025         |                                   |   |  |  |   |   |  |
| February<br>2025     |                                   |   |  |  |   |   |  |
| March 2025           |                                   |   |  |  |   |   |  |
| April 2025           |                                   |   |  |  |   |   |  |
| May 2025             |                                   |   |  |  |   |   |  |
| June to July<br>2025 |                                   |   |  |  |   |   |  |



**Appendix 5: Budget**

| <b>No</b> | <b>Activity</b>                | <b>Cost</b>    |
|-----------|--------------------------------|----------------|
| <b>1</b>  | Fees for research              | 500 000        |
| <b>2</b>  | Connectivity of internet       | 40 000         |
| <b>3</b>  | Equipment                      | 25 000         |
| <b>4</b>  | Assistance for research        | 90 000         |
| <b>5</b>  | Photocopy printing and binding | 45 000         |
| <b>6</b>  | Stationary                     | 65 000         |
| <b>7</b>  | Communication                  | 60 000         |
| <b>8</b>  | Transport                      | 140 000        |
| <b>9</b>  | <b>Total</b>                   | <b>965 000</b> |

## Appendix 6: Proof of assurance

REPUBLIC OF RWANDA  
NORTHERN PROVINCE  
MUSANZE DISTRICT  
MUHOZA SECTOR

Tel: 0781727024

On 8th July 2025



To the Mayor of Musanze District,

Thru the Director of Business &  
Economic Development Unit

Dear Sir,

**Re: Requesting for data collection**

I humbly submit this letter in your office in order to request for data collection in the district under your supreme authority.

In fact, Dear Sir, I am a student at INES-RUHENGERI under registration number ESM013/23. I am conducting a study about the "Effect of sustainable supply chain management on entrepreneurial success in Rwanda. Case study of Musanze district, fiscal year 2023-2024". Hence, I beg of kind and supreme power to allow me access the information regarding the entrepreneurial performance in all sectors of Musanze District. Please find enclosed the "*To whom it may concern*" from INES-Ruhengeri.

I look forward to hearing from you and I hope that my request will be given due consideration.

Yours faithfully,

NYIRABATWARE Marie Grace



**INSTITUT D'ENSEIGNEMENT SUPÉRIEUR DE RUHENGARI**

B.P. 155, Ruhengeri, Rwanda

T : +250 788 90 30 30, +250 788 90 30 32, W : [www.ines.ac.rw](http://www.ines.ac.rw), E : [info@ines.ac.rw](mailto:info@ines.ac.rw)

**TO WHOM IT MAY CONCERN**

**RE: Introductory letter to collect research data**

Dear Sir/Madam,

The Institut d'Enseignement Supérieur de Ruhengeri, INES-Ruhengeri is pleased to recommend the student **NYIRABATWARE Marie Grace**, registered under registration number ESM013/23, Faculty of Economics, Social Sciences and Management, **Master of Arts in Entrepreneurship and SME's Management** in your services to help him to get the data concerning his dissertation entitled: *« Effect of sustainable supply chain management on entrepreneurial success in Rwanda. Case of Musanze District (2023-2024) ».*

Under the supervision of **Dr. MUHAYIMA Victoire**

This "To whom it may concern" stands for the **research testimonial**.

Yours sincerely,

Done at Musanze, on June 23<sup>rd</sup> 2025

**Dr. UWILINGIYIMANA Charline**  
*Deputy Vice Chancellor for Academics and Research*

*Accredited by Ministerial Order N° 005/2010/Mineduc of 16 June 2010*

*Scientia et Lux*

## Appendix 7: Plagiarism report

### NYIRABATWARE Marie Grace

#### Grace Thesis 29-7-2025ok.pdf

 Thesis Submission (Moodle PP)  
 MT92415 - Thesis (Moodle PP)  
 DNES Ruhengeri

##### Document Details

Submission ID  
trncid::1:3304747217

Submission Date  
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File Name  
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1.1 MB

79 Pages

17,536 Words

133,472 Characters



Page 1 of 81 - Cover Page

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
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