SUPPLY CHAIN MANAGEMENT PRACTICES, AGILITY AND THE PERFORMANCE OF MANUFACTURING FIRMS IN COAST REGION, KENYA

BY

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DECLARATION

By the Candidate

I hereby declare that this proposal is my own work and to the best of my knowledge and has not been submitted by any person for the award of a degree in any other institution of higher learning.

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DEDICATION

This work is dedicated to my parents Mr and Mrs Mwenye Mohamed for their support and encouragements. I greatly owe them.

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ABSTRACT

Firms' performance is a composite construct that indicates the business performance of a company. Kenyan manufacturing sector has experienced negative performance issues this is as a result of trade imbalance, drop in gross domestic product and closure of international manufacturing firms. Supply chain management practices are a set of activities that span enterprise functions from the ordering and receipt of raw materials, manufacturing of products, through to the distribution and delivery to the customer. The general objective of this study was to establish the mediating effect of supply chain agility on supply chain management practices and performance of manufacturing firms in the Coast Region, Kenya. The specific objectives of this study were to determine the effect of customer relationship management practice, supplier relationship management practice, information sharing management practice and the mediating effect of supply chain alertness on supply chain management practice on performance of manufacturing firms in Coast Region, Kenya. The study deployed the systems theory, resource dependency theory and the network theory. The study employed explanatory research design and the target population was 104 manufacturing firms in Coast Region, Kenya. The census method was used due to the small size of the target population. Primary data was collected using a Linkert Type five scale structured questionnaire. Pilot study was conducted and instrument reliability and validity was tested. Descriptive statistics and inferential statistics were generated. The data was presented in tables. The correlation results showed that customer relationship management practice (r=.308, p=.010), supplier relationship management practice (r=.613, p=.000), information sharing management practice (r=.346, p=.004), and the supply chain agility (r=.547, p=.000), were positively and significantly correlated with the performance of manufacturing firms in the Coast Region. The multiple regression results showed that customer relationship management practice (β=.288, p=.011), supplier relationship management practice (β=1.307, p=.000), information sharing management practice (β=.459, p=.000), and the supply chain agility (β=.227, p=.006), were positively and significantly related with the performance of manufacturing firms in Coast Region. The mediated multiple regression results showed that supply chain agility positively and significantly moderate customer relationship management practice (β=.452, p=.004), supplier relationship management practice (β=1.333, p=.000), while it positively and significantly moderated information sharing management practice (β=.039, p=.823) and performance of manufacturing firms in Coast Region. The study concluded that supply chain agility positively moderated the relationship between customer relationship management, supplier management practices and information sharing management practice. The study recommended that managers of manufacturing firms should deploy customer relationship management, supplier relationship management, information sharing management practice and supply chain agility so as to improve the performance of manufacturing firms in the Coast Region, Kenya.

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ABBREVIATIONS AND ACRONYMS

ASC-

CRM - Customer Relationship Management

GDP

GPS

ISM   - Information Sharing Management

KM

LIS

MFP

ROA

ROE

ROI

ROS

SCM - Supply Chain Management

SCQM – Supply Chain Quality Management

SRM - Supplier Relationship Management

DEFINITION OF TERMS

Customer relationship management (CRM) is concerned with planning, implementing, and evaluating successful relationships between providers and recipients either upstream or downstream of supply chain (Bardicchia, 2020).

Firm performance - Refers to how well an organization achieves its market-oriented goals as well as its financial goals (Hill, Jones, & Schilling, 2014).

Information Sharing Management – Refers to frequent information updating among the chain members for effective supply chain management (Copacino, 2019).

Supply Chain Agility a company's ability to smoothly and profitably respond to external market changes (Lambert, D& Enz, 2017)

Supply Chain Alertness the ability to quickly detect changes, opportunities, and threats (Hugos, 2018)

Supply Chain Management Refers to complete set of actions which are done in organizations practices towards to improve the effectiveness in the internal supply chain (Monczka *et al.,* 2015).

Supplier Relationship Management- Refers the long term relationship between the organization and   its suppliers (Christopher, 2017).

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter presents background of the study, statement of the problem, objectives of the study, research hypotheses, and significance of the study and the scope of the study.

1.1 Background of the Study

Firms' performance is a composite construct that indicates the business performance of a company. Specifically, it refers to how well a firm fulfills its financial and market goals. Performance in organizations takes many forms depending on whom and what the measurement is meant for. Different stakeholders require different performance indicators to enable them make informed decisions. Organizational performance encompasses three specific areas of firm outcomes: financial performance (profits, return on assets, return on investment), product market performance (sales, market share), and shareholder return (total shareholder return, economic value added). Sayles, (2017) defines Organizational Performance as the ability of an organization to fulfill its mission through sound management, strong governance and a persistent rededication to achieving results. Effective nonprofits are mission-driven, adaptable, customer-focused, entrepreneurial, outcomes oriented and sustainable (Hill, et. al., 2014).

Using financial measures alone overlooks the fact that what enables a company to achieve or deliver better financial results from its operations is the achievement of strategic objectives that improve its competitiveness and market strength. Non-financial measures include innovativeness and market standing (Podrug *et al.,* 2017). Performance is therefore measured by both financial and non-financial measures. Tayeh *et al.,* (2015), listed various methods to measure the overall organizational performance which are; accounting measures (profitability measures, growth measures, leverage,

liquidity and cash flow measures), operational performance (market share, changes in intangible assets such as patents or human resources, customer satisfaction and stakeholder performance market based measures (return on shareholder performance), market based measures (return on shareholder, market value added, holding period returns), survival measures (takes time horizons of five years and less) and economic value measures (residual income, economics value added and cash flow return on investment) (Benton, 2020).

Organization performance has been the most important issue for every organization be it profit or non-profit one. It has been very important for managers to know which factors influence an organization's performance in order for them to take appropriate steps to initiate them. However, defining, conceptualizing, and measuring performance have not been an easy task. Researchers among themselves have different opinions and definitions of performance, which remains to be a contentious issue among organizational researchers, the central issue concerns with the appropriateness of various approaches to the concept utilization and measurement of organizational performance (Panahifar, Byrne, Salam, & Heavey, 2018).

Performance, in fact, continues to be a contentious issue among organizational researchers. Mgeni & Nayak (2016), performance is equivalent to the famous 3Es (economy, efficiency, and effectiveness) of a certain program or activity. Organizational performance is the organization's ability to attain its goals by using resources in an efficient and effective manner. Organizational performance as the ability of the organization to achieve its goals and objectives. Organizational performance has suffered from not only a definition problem, but also from a conceptual problem.

Supply chain management (SCM) is an important environmental and social subject relating to corporate sustainability. Companies' interest in SCM has increased in recent decades because of growing global competition, outsourcing of companies' non-core activities and the shortening of product life cycles. More importantly, companies' close long-term relationships with suppliers and other strategic partners have become a key factor in competitiveness. At the same time, companies have become more deeply committed to corporate social responsibility (CSR) and sustainability by refusing to implement reductionist corporate management model focused only on shareholders' interests. The supply chain is a system of organizations, people, activities, information and resources related to the transfer of products or services from the supply level (supply chain) to customers *(*Bruque-Cámara *et al.,* 2016*)*. The major role of the supply chain is to assure the demand of customers that is met with the supply of the products. It has to be assured that the companies never produce extra or insufficient products (Christopher, 2017).

Supply Chain Management is having the systematic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole (Beske-Janssen *et al.,* 2015)**.** Supply Chain Management (SCM) requires traditionally separate material functions to report to an executive who is responsible for coordinating the entire materials process. It also requires joint relationships with suppliers across multiple tiers. SCM is a concept, whose primary objective is to integrate and manage the sourcing, flow, and control of materials using a total systems perspective across multiple functions and multiple tiers of suppliers. Supply chain management (SCM) covers all the interactions linking customer and supply companies

in the delivery of products to consumers. SCs must be managed to meet customer expectations of product quality and price and the place of delivery. To achieve this, SC members must continuously adjust functional processes and implement collaborative strategies along the SC. SCM represents a strategic view of collaboration and integration, demonstrating their benefits in terms of individual business performance. Positive performance of SC members is crucial to companies in competitive business environments, and both academicians and firm managers seek consensus related to SC network relationships. The search for methods to improve firm performance through SCs is currently drawing the interest of firm managers and inspiring the efforts of researchers. Despite this growing tendency, the progress observed to date has not significantly improved management practices and that researchers have not achieved a sufficiently clear understanding of the SC phenomenon (Hugos, 2018).

Studies have reported different relationships between SCM elements, such as integration or collaboration, asymmetry and firm performance. Regarding integration and performance, some studies do not show any relationship between the two. These studies show that cooperation, especially the basic integration of source and delivery, does not directly impact firm performance. The results indicate that strategic supplier integration, especially in industrial environments, is negatively associated with several different market performance aspects, such as new product and process flexibility or cost efficiency. Conversely, a positive and linear relationship between integration and performance outcomes, especially related to flexibility, cost, delivery and quality. Information sharing has two aspects: quantity and quality. Both aspects are important for the practices of SCM and have been treated as independent constructs in the past SCM studies Level (quantity aspect) of information sharing refers to the extent to which critical and proprietary information is communicated to one's supply chain partner.

Shared information can vary from strategic to tactical in nature and from information about logistics activities to general market and customer information. Researchers have suggested that the key to the seamless supply chain is making available undistorted and up-to-date marketing data at every node within the supply chain. By taking the data available and sharing it with other parties within the supply chain information can be used as a source of competitive advantage (Quang *et al.,* 2016). Sharing of information as one of five building blocks that characterize a solid supply chain relationship.

Kaliani *et al.,* (2016), noted that supply chain partners who exchange information regularly are able to work as a single entity. Together, they can understand the needs of the end customer better and hence can respond to market change quicker. Moreover, Banerjee & Mishra (2017) consider the effective use of relevant and timely information by all functional elements within the supply chain as a key competitive and distinguishing factor. Level of information sharing (LIS) is defined as the extent to which critical and proprietary information is communicated to one supply chain partner. Shared information can vary from strategic to tactical in nature and from information about logistics to customer and general market information (Pearlson *et al.,* 2016). Increasing attention on information integration prompts the increase of the establishment of strategic SC partners. Knowledge management (KM) practices can support learning and growth of a manufacturing firm and its linkage to its supply chain. KM practices are based on information sharing of the supply chain tiers' shared experience and practices, and learning with respect to their mutual matters existed throughout their SC network. The performance indicators for MFP and supply chain performance (SCP) can help measuring the level of development of the firm's knowledge, skill-set and behavioral aspects. This will facilitate producing a harmony within a company about how operations should be accomplished through internal

integration, and it can be responsive to the supply chain requirements through its external integration to supply chain tiers (Tarafdar, & Qrunfleh, 2017).

Customer relationship comprises the entire array of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction. Tripathy *et al., (*2016) consider customer relationship management as an important component of SCM practices. Committed relationships are the most sustainable advantage because of their inherent barriers to competition. The growth of mass customization and personalized service is leading to an era in which relationship management with customers is becoming crucial for corporate survival. Good relationships with supply chain members, including customers, are needed for successful implementation of SCM programs Close customer relationship allows an organization to differentiate its product from competitors, sustain customer loyalty, and dramatically extend the value it provides to its customers (Sabet *et al.,* 2017). Close customer relationship allows an organization to differentiate its product from competitors, sustain customer loyalty, and dramatically extend the value it provides to its customers (Agrawal, & Narain, 2018).

Customer relationship management (CRM) is concerned with planning, implementing, and evaluating successful relationships between providers and recipients either upstream or downstream of supply chain. CRM mainly refers to activities such as sharing product information with customers, interacting with them to manage demand and satisfy their wants and needs, accept customer orders, having an order placing system, sharing order status with customers during order scheduling, and the product delivery phase. CRM has been widely studied in the academic literature as it is considered a core and key element of successful SCM. Supplier relationship is defined as the long term relationship between the organization and its suppliers. It is designed

to leverage the strategic and operational capabilities of individual participating organizations to help them achieve significant ongoing benefits. A strategic partnership emphasizes direct, long-term association and encourages mutual planning and problem solving efforts. Such strategic partnerships are entered into to promote shared benefits among the parties and ongoing participation in one or more key strategic areas such as technology products, and markets. Strategic partnerships with suppliers enable organizations to work more effectively with a few important suppliers who are willing to share responsibility for the success of the products. Suppliers participating early in the product-design process can offer more cost effective design choices, help select the best components and technologies, and help in design assessment. Strategically aligned organizations can work closely together and eliminate wasteful time and effort. An effective supplier partnership can be a critical component of a leading edge supply chain (Chin & Sulaiman 2015).

Studies have argued that SCM affects firm performance. Efficient SCM and purchasing practices may also have a significant effect on firm performance and that supply chain practices are needed for satisfying customer demands. Empirically found that lead time performance was affected by information quality and close relationships between the buying firm and the supplier firm (Sundram, Chandran, & Bhatti, 2016). Supply chain management is an integrated approach beginning with planning and control of materials, logistics, services, and information stream from suppliers to manufacturers or service providers to the end client; it represents a most important change in business management practices. It is one of the most effective ways for firms to improve their performance. SCM includes a set of approaches and practices to effectively integrate suppliers, manufacturers, distributors and customers for improving the long-term performance of the individual firms and the supply chain as a whole in a cohesive and

high-performing business model. A successful SCM implementation is expected to enhance the relationship between upstream suppliers and downstream customers, and thereby increase customer satisfaction and firm performance (Mandal, 2016).

Supply chain management (SCM) seeks to enhance competitive performance by closely integrating the internal functions within a company and effectively linking them with the external operations of suppliers, customers, and other channel members. The benefit of such supply chain integration can be attained through efficient linkage among various supply chain activities, and the linkage should be subject to the effective construction and utilization of various supply chain practices for an integrated supply chain. This means that a firm that is pursuing the effective construction of SCM practices needs to pay attention to SC integration. SCM practices implemented to achieve superior supply chain performance require internal cross-functional integration within a firm and external integration with suppliers or customers to be successful (Stadtler, 2015).

Aa mediating variable is a variable that links the independent and the dependent variables, and whose existence explains the relationship between the other two variables. A mediating variable is also known as a mediator variable or an intervening variable. A mediating variable (or mediator) explains the process through which two variables are related. Including mediators in a research helps to go beyond studying a simple relationship between two variables for a fuller picture of the real world. These variables are important to consider when studying complex correlational or causal relationships between variables. A mediator variable explains the how or why of an (observed) relationship between an independent variable and its dependent variable. In a mediation model, the independent variable cannot influence the dependent variable directly, and instead does so by means of a

third variable, a 'middle-man' (Sekeran & Bounge, 2016). In this study, supply chain alertness will be the mediating variable. Supply chain agility is sufficient as a mediator because of its strategic ability that assists organizations rapidly to sense and respond to internal and external uncertainties via effective integration of supply chain relationships.

1.1.1 Global Performance in Manufacturing

The manufacturing sector is a major part of the economy as it accounts for nearly 16% of the global GDP in 2018. As per the estimation by United Nations Conference on Trade and Development (UNCTAD), the COVID-19 outbreak could cause global FDI to shrink by 5%-15%, due to the downfall in manufacturing sector coupled with factory shutdown. Global manufacturing output growth has registered a sharp decline of 6.0 per cent in the first quarter of 2020 due to economic lockdown measures motivated by COVID-19 pandemic. The current economic downturn is the first of such magnitude since the financial crisis of 2008/2009, when manufacturing output fell by 7.1 per cent in the fourth quarter of 2008. Industrialized economies, manufacturing production in these countries dropped by 2.5 per cent compared to the first quarter of 2019. North America's manufacturing output fell by 2.4 per cent in the first quarter of 2020. The manufacturing output of Europe's industrialized economies dropped by 4.4 per cent for similar reasons as well on a year-over-year comparison, while East Asia's manufacturing output remained almost the same, primarily due to the recent solid performance of the Republic of Korea and Taiwan, Province of China. Other developing economies achieved a stable year-over-year manufacturing output growth rate of 1.7 per cent in the first quarter of 2020. Turkey, the largest manufacturer in this country group, showed strong output growth at 4.7 per cent in the first quarter of 2020;

in the previous quarter, the country's manufacturing output growth rate was 6.4 per cent, following a year of massive reductions in output (UNIDO, 2020).

North America's manufacturing output fell by 2.4 per cent in the first quarter of 2020 on a year-over-year comparison. Manufacturing output of East Asia's industrialized economies remained almost the same in the first quarter of 2020, but registered a decrease of 3.1 per cent in the previous quarter. The output of the region's largest manufacturer, Japan, dropped further by 4.2 per cent after a decrease of 6.7 per cent in the previous quarter. Others such as Taiwan, Province of China (9.0 per cent), Singapore (6.4 per cent), the Republic of Korea (4.8 per cent) and Malaysia (1.4 per cent) defied the general downward trend. Manufacturing production in European industrialized economies fell by 4.4 per cent in the first quarter of 2020; Hungary (-1.6 per cent), Sweden (-1.2 per cent), Poland's (+ 0.9 per cent), United Kingdom (-6.0 per cent), Switzerland (+ 0.7 per cent in the first quarter of 2020 as well as in the last quarter of 2019. In the first quarter of 2020, China's manufacturing output (-14.1 per cent) whereas in the last fourth quarter of 2019, China still witnessed (+6.4 per cent). Asia and the Pacific experienced a drop of manufacturing output (-2.5 per cent) compared to the same quarter of the previous year. Latin America's manufacturing output on a year-over-year basis decreased by 2.8 per cent in the first quarter of 2020. By contrast, Bosnia and Herzegovina's, Romania's and Croatia's manufacturing output fell by 8.0 per cent, 7.5 per cent and 3.8 per cent, respectively, compared to the first quarter of 2019 (UNIDO, 2020).

1.1.2 Performance of Firms in Kenya

Statistics from World Bank show that manufacturers operate in Kenya registered stagnation and declining profits for the last five years due to a turbulent operating

environment (WB, 2015). Manufacturing sector in Kenya contributed barely 13.6 per cent to the GDP in the year 2016 indicating a decline from the previous year 2015 where it had reported a 5.6 per cent growth (KNBS, 2016). The manufacturing sector in Kenya grew at 3.5% in 2015 and 3.2% in 2014, contributing 10.3% to gross domestic product (GDP) (KNBS, 2016). On average, however, manufacturing has been growing at a slower rate than the economy, which expanded by 5.6% in 2015. This implies that the share of manufacturing in GDP has been reducing over time. According to the Economic Survey 2019, Kenya's economy grew by 6.3 percent in 2018 majorly driven by impressive growth in Agriculture, manufacturing and transport sectors. This was an improved performance compared to a growth of 4.7 percent in 2017, the least in 5 years. Manufacturing sector recorded a growth of 4.2 per cent in 2018, which was an impressive rebound from a 0.5 per cent growth in 2017 (KNBS, 2020).

1.2 Statement of the Problem

Kenyan manufacturing sector has experienced negative performance issues this is as a result of trade imbalance, drop in gross domestic product and closure of international manufacturing firms, this has led to reduced government annual gross domestic product, unemployment, inflation and imbalance of trade resulting to weakening and instability of the currency as a result of increased imports (Lee, *et al.,* 2016. The poor performance by these firms may have been as a result of poor implementation of supply chain management practices since it significantly contributes to the development and growth of organizations (Christopher, 2016).

North America's manufacturing output fell by 2.4 per cent in the first quarter of 2020. The Manufacturing output of East Asia's industrialized economies remained almost the same in the first quarter of 2020, but registered a decrease of 3.1 per cent in the previous quarter. Japan's output dropped by 4.2 per cent after a decrease of 6.7 per cent in the

previous quarter. Taiwan (9.0 per cent), Singapore (6.4 per cent), the Republic of Korea (4.8 per cent) and Malaysia (1.4 per cent) defied the general downward trend. Manufacturing production in European industrialized economies fell by 4.4 per cent in the first quarter of 2020.

Supply chain management (SCM) has become a crucial strategy for firms to enhance their profitability and stay competitive hence it has generated extensive interest among managers & academicians. Furthermore, the importance of SCM practices to organizations is reinforced by factors such as increasing competition, globalization, greater product variety, outsourcing, shorter product life cycles, continuous advances in technology and ever-demanding clients. Researchers have focused on particular aspects in the field of SCM that include; supplier selection, supplier involvement, manufacturer &retailers linkages (Li & Zhang, 2015), supply chain resilience, SCM practices, green supply chains (Choi *et al.,* 2016).

Mwale & Nyamwange, (2014), investigated Supply chain management practices and organizational performance of large manufacturing firms in Nairobi and found out that supply chain management practices has a direct impact organization performance. Alzoubia & Yanamandrab (2019) in investigating the mediating role of information sharing strategy on agile supply chain found out that information sharing plays a major mediating role in agile supply chain to achieve superior supply chain performance. Nazempour, Yang & Javaid (2019) in effect of supply chain agility dimensions on supply chain performance found out that supply chain agility has positive connection with supply chain performance. Hachu, & Paul (2018) on the influence of supply chain agility on competitiveness of liquefied petroleum gas firms found out that the effectiveness in the alertness of supply chain led to better competitiveness of liquefied petroleum gas firms. Dhaigude & Kapoor (2017) in the mediation role of supply chain

agility on supply chain orientation found out that supply chain orientation and supply chain agility are directly and significantly related with supply chain performance. Mahrinasari & Hasnawati (2020) in the mediating effect of strategic agility in the Relationship of supply chain management activities and firm performance found out that supply chain management activities has positive and significant relationship with the strategic agility and that strategic agility has also an association with the firm performance. Tangus (2015) on the Effect of Supplier Relationship Management Practices on performance on Manufacturing Firms in Kisumu County, found out that trust is a critical factor fostering commitment among supply chain partners hence supply chain performance. The above studies though very important have fallen short on identifying the mediating effect of supply chain alertness on supply chain management practices and firm performance. Therefore, this study went out to find out the mediating effect of supply chain agility on supply chain management practices and performance of manufacturing firms in the Coast Region, Kenya.

1.3 Objectives of the Study

This study was guided by the general objective and the specific objectives.

1.3.1 General Objective

The general objective of this study was to establish the mediating effect of supply chain agility on the relationship of supply chain management practices and performance of manufacturing firms in the Coast Region, Kenya.

1.3.2 Specific Objectives

i. To determine the effect of customer relationship management practice on the performance of manufacturing firms in the Coast Region, Kenya.

ii. To assess the effect of supplier relationship management practice on the performance of manufacturing firms in the Coast Region, Kenya.

iii. To analyze the effect of information sharing management practice on the performance of manufacturing firms in the Coast Region, Kenya.

iv. To establish the mediating effect of supply chain agility on supply chain management practice and performance of manufacturing firms in the Coast Region, Kenya.

1.4 Research Hypothesis

This study was guided by the following null hypotheses

H_{01} Customer relationship management practice has no significant effect on the performance of manufacturing firms in Coast Region, Kenya.

H_{02} Supplier relationship management practice has no significant effect on the performance of manufacturing firms in Coast Region, Kenya.

H_{03} Information sharing management practice has no significant effect on the performance of manufacturing firms in Coast Region, Kenya.

H_{04a} Supply chain agility has no significant mediating effect on customer relationship management practice and performance of manufacturing firms in Coast Region, Kenya.

H_{04b} Supply chain agility has no significant mediating effect on supplier relationship management practice and performance of manufacturing firms in Coast Region, Kenya.

H$_{04c}$ Supply chain agility has no significant mediating effect on information sharing management practice and performance of manufacturing firms in Coast Region, Kenya.

1.5 Significance of the Study

The main purpose of the study was to determine the mediating effect of effect of supply chain agility on supply chain management practices and organizational performance of manufacturing firms in Coast Region, Kenya. The study will be useful to investors, practitioners, stakeholders' and managers. Finally the study is great benefits to the academic researchers who wish to conduct academic research in areas supply chain management practices, quality supply chain process and firm performance and other related areas.

Theoretically, the study will provide an insight on the effects of supply chain alertness on supply chain management practices and performance manufacturing firms in Coast Region, Kenya. Further, other non-manufacturing firms will also benefit from the findings of this study since it will shed more light on the effect of supply chain alertness and firm performance. In empirical and literature terms, the study will help organizations to understand and make use of supply chain alertness and supply chain management practices to improve on firm performance. The findings of this study will also be significant to decision makers, researchers and policy makers in understanding the mediating effect of supply chain alertness, supply chain management practices and firm performance.

1.6 Scope of the Study

The study explored the mediating effect of supply chain agility on supply chain management practices and performance of manufacturing firms in Coast Region. Coast

Province hosts a number of manufacturing firms. The study collected data from procurement managers of the manufacturing firms due to their adverse knowledge in supply chain management practices. The study took place November 2021 in firms operating in Coast Region as at December 2020. The manufacturing sector consists of a high level of materials movement and therefore, supply chain agility is a pillar of firm performance.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter consists of literature review. It covers a review of the concepts, the theoretical framework, empirical review, research gaps and summary and the conceptual framework.

2.1 The Concept of Firm Performance

Performance measurement is very important for the effective management in organization. Without measuring something, it is impossible to improve it. Organizational performance refers to how well an organization achieves its market-oriented goals as well as its financial goals. The traditional approach to performance measurement using solely financial performance measure is flawed. A number of prior studies have measured organizational performance using both financial and market criteria, including return on investment (ROI), market share, profit margin on sales, the growth of ROI, the growth of sales, and the growth of market share. Organizational performance refers to how well an organization achieves its market-oriented goals as well as its financial goals. The short-term objectives of SCM are primarily to increase productivity and reduce inventory and cycle time, while long-term objectives are to increase market share and profits for all members of the supply chain financial metrics have served as a tool for comparing organizations and evaluating an organization's behavior over time (Stadtler, 2015). Any organizational initiative, including supply chain management, should ultimately lead to enhanced organizational performance. A number of prior studies have measured organizational performance using both financial and market criteria, including return on investment (ROI), market share, profit margin

on sales, the growth of ROI, the growth of sales, the growth of market share, and overall competitive position (Shi & Behnia, 2020).

Performance measures could include result-oriented behavior (criterion-based) and relative (normative) measures, education and training, concepts and instruments, including management development and leadership training, which are the necessary building skills and attitudes of performance management. Hence, from the above literature review, the term "performance" should be broader based which include effectiveness, efficiency, economy, quality, consistency behavior and normative measures. Many metrics are used to measure organizational performance. These metrics include profitability, gross profit, return on asset (ROA), return on investment (ROI), return on equity (ROE), return on sale (ROS), revenue growth , market share, stock price, sales growth, export growth, liquidity and operational efficiency (O'Neill *et al.,* 2016; Tayeh *et al.,* 2015). Most practitioners seemed to use the term performance to describe a range of measurements including input efficiency, output efficiency and in some cases transactional efficiency (Maduenyi *et al.,* 2015). However, there is no single measure or best measure of organizational performance. Organization adopts different objectives and measurements for organizational performance. In most cases, profitability is the most common measurement used for organizational performance in business organizations, as seems to be the indicator to identify whether an organization met its objectives or not (Ajagbe *et al.,* 2016). Ongalo, & Tari (2015), supported the use of return on assets (ROA), return on equity (ROE), and profit margin as the most common measures of performance. Return on Assets (ROA) is derived by dividing net income of the fiscal year with total assets. Return on Equity (ROE) means the amount of net income returned as a percentage of shareholders equity. It measures a corporation's profitability by revealing how much profit a company generates with the

money shareholders have invested. Firms' performance is widely measured through the financial success of the organization. Financial stress for most profit-oriented firms can be assessed both in terms of "top-line" (e.g., sales) as well as "bottom-line (e.g., profitability) measures. The profitability of an organization is an important financial indicator to reflect the efficiency of the organization and the owners/managers ability to increase sales while keeping the variable costs down (Kavale *et al.,* 2017). Profit margin, return on assets, return on equity, return on investment, and return on sales are considered to be the common measures of financial profitability (Ramadan & Ahmad 2018).

Furthermore, Ahmad *et al.,* (2015) notes that sales, sales growth, net profit, and growth profit are among the financial measures preferred by most SMEs as profitability is analyzed by three financial ratios, which are return on sales (ROS), return on investment (ROI) and return on asset (ROA).

2.2 The Concept of Supply Chain Management Practices

The practice of SCM refers to complete set of actions which are done in organizations towards to improve the effectiveness in the internal supply chain. The modern evaluation of the SCM practices that comprises of partnership with the supplier, process of outsourcing, compression of cycle time, continuousness of process flow and sharing or technology and information by using purchasing the quality and relations with the customer (Monczka *et al.,* 2015). SCM practices are defined as a set of activities undertaken in an organization to promote effective management of its supply chain. Supply base management refers to how firms utilize their supplier's processes, technology and capabilities to enhance supply chain performance and competitive advantage and how the manufacturing, logistics, materials distribution and transportation functions are coordinated within organizations. SCM in practice means

includes the involved companies planning and strategy for coordination of their supply chain including collaboration between functions internally as well as across company (Lambert, & Enz, 2017).

SCM is the integration of business processes from end user through original supplies that provides products, services and information that add value to customers. SCM's practices involve a set of activities undertaken by organization to promote effective management of their supply chain, Frederico & de Souza (2017), argues that SCM lead to changes in the structure of the organization by integrating internal functions and linking these with the external operation of suppliers, customers and others stakeholders of the supply chain. The key activities associated with SCM include inventory management, customer relationship management, supplier information management, inventory control among others (Bimha, Munapo, & Hoque, 2020).

2.2.1 The Concept of Customer Relationship Management Practice

Customer relationship management (CRM) is the combination of practices, strategies and technologies that companies use to manage and analyze customer interactions and data throughout the customer lifecycle. The goal is to improve customer service relationships and assist in customer retention and drive sales growth. CRM systems compile customer data across different channels, or points of contact, between the customer and the company, which could include the company's website, telephone, live chat, direct mail, marketing materials and social networks. CRM systems can also give customer-facing staff members detailed information on customers' personal information, purchase history, buying preferences and concerns (Bardicchia, 2020).

The use of CRM systems can benefit organizations ranging from small businesses to large corporations, through: Having customer information such as past purchases and

interaction history easily accessible can help customer support representatives provide better and faster customer service. Collection of and access to customer data can help businesses identify trends and insights about their customers through reporting and visualization features. Automation of menial, but necessary, sales funnel and customer support tasks (Monczka, et. al. 2015). Customer relationship management (CRM) is an important component of SCM. A firm's customer relationship practices can generate the organizational success in supply chain management practices efforts as well as its performance considered that customer relationship management can be seen as the consistent organizational activity under usage of integrated selling, marketing and service strategy. That is, trying to define the real need of the customer, by the enterprise integrating various process and technology, in asking internal product and service improvement, in order to dawn effort of enhancing customer satisfaction and loyalty (Bellisario, & Pavlov, 2018).

CRM is the implementation of an integral series of technology and strategies developed purposely for creation of shareholders value via maintaining strong long-term relationships among customer (both current and potential customers). It is a comprehensive strategy and process of acquiring, retaining, and partnering with selective customers to create superior value for the company and the customer. It involves the integration of marketing, sales, customer service, and the supply-chain functions of the organization to achieve greater efficiencies and effectiveness in delivering customer value (). CRM can also be defined based on three different perspectives; business philosophy, business strategy and technology towards effective and successful adoption and implementation. CRM is characterized as any application which requires an organization to make use effective and efficient business strategy and leadership style in order to create relationship management with customers. In due

course, CRM comprised of three most important objectives as customer profitability, customer acquisition and customer retention (Marianna, 2018). Customer profitability is dealing with providing the customer with the exact product as at when needed. Customer, relationship and management are considered as the main components of CRM, people process and technology. Therefore, CRM is considered as making use of people, process and technology to retain existing customers, attract new customers and create value to the customers as well (Agrawal, & Narain, 2018).

2.2.2 The Concept of Supplier Relationship Management Practice

Supplier Relationship Management Practice represents the long-term relationship between the organization and suppliers. An effective supplier's management can be a critical component of a leading edge supply chain. Through strategic supplier partnerships, organizations can work closely with suppliers who can share responsibility for the success of the company. Collaboration with other firms or organizations, also include suppliers, has positive significant impact on process innovation and incremental product innovation. Such strategic supplier partnerships should enable successful SCM. Organizations depend on their customers and therefore should understand current and future customer needs, meet customer requirements, and strive to exceed customer expectations (Spina, Serio, Brito, & Duarte, 2015).

2.2.3 The Concept of Information Sharing Management Practice

Information sharing is the ability of the firm to share knowledge with supply chain partners in an effective and efficient approach, effective information sharing is considered as one of the most important abilities of supply chain process is one of the most important tools for achieving an integrated and coordinated supply chain. Information should be interoperable, which means that one system can talk to another. the technological wave of internet and e-commerce provides a new opportunity to

create a "smart" integrated supply chain. Information sharing is the access to private data between business partners thus enabling them to monitor the progress of products and orders as they pass through various processes in the supply chain. Researchers have identified some of element that comprise information sharing, consisting data acquisition, processing, storage, presentation, retrieval, and broadcasting of demand and forecast data, inventory status and location, order status, cost related data, and performance status Internet, Intranet, and Extranet can be distinguished based on characteristics including access, users, and information. The Internet is a public network accessed by general users. How-ever, due to inconsistent format and diversified content, information available on the Internet is fragmented. By comparison, the Intranet, via Internet technologies, is a private network set up within an organization; information is proprietary and only available for members within the organization (Russell, & Swanson, 2019).

Sharing of right and updated information enables organizations to achieve competitiveness and develops capabilities to achieve sustainability, enhances SCA by preparing firms to quickly respond to the unexpected disruptions effectively. It is a widely applied strategy in supply chain to achieve agility (García-Alcaraz et al., 2017). Implementation of ASC related practices becomes very easy and takes less time through IT enabled information sharing applications. Superior IT integration advances the capability of supply chain systems. Electronic Data Integration (EDI), is one such application which enables quick sharing of huge information and decreases ambiguity, intensifies supplier shipment performance and boosts supply chain system performance. Ability of an organization to respond quickly to the dynamic needs of market becomes easier through a well-organized flow of information sharing. IT integration permits real-time information exchange and sharing among supply chain

partners, and enhances the speed in supply chain systems. Hence, it is concluded that there exists a relationship between IT integration and supply chain management systems. Due to increased competition in the recent past, it has become essential for organizations to adopt innovative strategies using IT applications to mitigate the risks and threats (Haq & Boddu, 2017). Innovative approaches of sharing information will allow the organization to develop their knowledge and experiences on different aspects of the business (Zhao, Hu, & Wang, 2015). The enhanced and advanced information will also enable the organizations to develop their SC by developing their production methodologies and processes in an effective as well as enhanced manner (Tripathy, Aich, Chakraborty, & Lee, 2016).

2.2.4 The Concept of Supply Chain Agility

Supply chain agility is a company's ability to smoothly and profitably respond to external market changes. Those changes themselves are multifaceted and interrelated, involving everything from evolution in consumer preferences to competitor disruption to broader economic and market volatility. Supply chain agility refers to an organization's ability to smoothly respond to market changes. These changes are vast and intertwined, involving everything from changes in customer preferences, to economic and market volatility, and competitor disruption, to name a few (Dubey, Altay, Gunasekaran, Blome, Papadopoulos, & Childe, 2017). Improving manufacturing supply chain agility will prompt changing internal processes. Most of the time, it means adopting new technology, data management, and service agreements with vendors. The goal is to maintain a responsive, fluid, and informed supply chain that can easily navigate any changes that may come their way – whether positive or negative.

Successful supply chain agility relies on:

Understanding that external factors shape your supply chain Logistics regardless of how steady things are at this moment, eexploring value chain components that are most affected by industry disruption. Integrating more proactive technology and process to address pain points in the value chain. Ongoing monitoring and analysis of new processes, production cost savings, and cross-functional collaboration and continuing to adjust processes when needed.

improving manufacturing supply chain agility will naturally trigger the adaptation of fresh internal processes, most often new enterprise technology usage, data management and even service agreements with third-party vendors. The goal of supply chain agility mirrors its name — maintain fluid, responsive and data-informed supply chain logistics more primed to navigate inevitable industry change (Fayezi, Zutshi, & O'Loughlin, 2017).

Agile Supply Chain has five key dimensions; alertness and awareness, accessibility, decisiveness, swiftness, flexibility and adaptability.

Alertness and awareness: Alert organizations are those best positioned to forecast industry changes, growth opportunities, upcoming disruptions and competitor threats. The more alert and aware an organization is to these realities, the quicker they can respond to shifts in product demand, material procurement, supplier trends, customer feedback, market pricing and much more.

Accessibility: Organizations cannot make changes in the dark. After spotting an emerging pattern or trend, those alert businesses must then have immediate access to specific industry data and relevant historical logs that all decision-makers can conveniently view, share and co-analyze.

Decisiveness: Decisive organizations are those that quickly and clearly translate noted industry shifts and the accompanying data into an action plan. In other words, it's the organization whose leaders have the tools and ability to execute a quick process change — then communicate the how and why of that change downstream. The most decisive organizations are often the ones with simplified or unified chains of command, sensibly reducing the number of touchpoints necessary to make a swift judgment call.

Swiftness: Swift manufacturers implement their action plans quickly. There are little-to-no impediments when introducing a process change to relevant value chain functions, as well as few communication silos or enterprise technologies to reconfigure. The swifter changes are made, the more cost-effective the entire supply chain, and the more profitable your business. This dimension also proves the realities of your agility cycle, since — up till this point — all work has been data-driven and preparatory.

Flexibility and adaptability: Last but not least, flexible organizations have the power and the buy-in to modify ongoing processes when new opportunities present themselves without disrupting the entire business. Those proficient in this dimension understand that action plans are bound to change, even ones initiated under a smooth, data-backed cycle fitting a value chain need at the time (Dhaigude, & Kapoor, 2017).

2.3 Theoretical Framework

The study was guided by the systems theory, the resource dependency theory, and the network theory.

2.3.1 Systems Theory

This theory argues that an event is seen as a whole and not a function of its sub systems. A system comprises of sub systems whose interrelationship and inter dependence move towards equilibrium of a larger system .The focus is on the relationship among subsystems in order to better understand an entity's organization, functioning and

results. It also views the organization as dependent on the environment it operates in which involves various parties which include agents, shareholders and other factors beyond the organization control. Systems theory incorporates various supply chain variables which then form a larger system of supply chain networks. It also helps to reveal the extent of dependence between constitutes of the system and a better understanding of the dynamics of the SC hence improve planning, execution and coordination of activities of manufacturing companies (Anwar, & Hasnu, 2016). This theory is important because it supports the fact that the supply chain is a system of players, each of which plays its role to make the overall success of the supply chain.

2.3.2 Resource Dependency Theory

Resource dependency theory is based on the principle that an organization, such as a business firm, must engage in transactions with other actors and organizations in its environment in order to acquire resources. Although such transactions may be advantageous, they may also create dependencies that are not. Resources that the organization needs may be scarce, not always readily obtainable, or under the control of uncooperative actors. The resulting unequal exchanges generate differences in power, authority, and access to further resources. To avoid such dependencies, organizations develop strategies (as well as internal structures) designed to enhance their bargaining position in resource-related transactions. Such strategies include taking political action, increasing the organization's scale of production, diversifying, and developing links to other organizations. Strategies such as diversifying product lines may lessen a firm's dependence on other businesses and improve its power and leverage (Wheelen & Hunger, 2012).

Companies typically adjust their business strategies to adapt to changes in power relationships with other companies. One of the assumptions of resource dependency theory is that uncertainty clouds an organization's control of resources and makes its choice of dependence-lessening strategies imperative. As uncertainty and dependencies increase, the need for links to other organizations also increases. For example, declining profits may lead to expanded business activity through diversification and strategic alliances with other companies. Research using resource dependency theory has sought to observe organizational adaptations to dependencies. One adaptation consists of aligning internal organizational elements with environmental pressures. Organizations also adapt by attempting to alter their environments (Hill, Jones & Schilling, 2014). This theory is important because it explains why firms make fruitful relationships their customers and suppliers basically to be able to increase their bargaining power hence increase the value of such relationships.

2.3.3 The Network Theory

The network theory involves the study of the way elements in a network interact. A simple way of understanding a network is by assuming that a set of objects are connected by some sort of link. The set of objects may represent, for example, human beings, products, ingredients, diseases, or brain regions, whereas the links are relationships or structural connections. Nodes, elements in a network, interact with one another, an interaction impacted by binding connections called edges. These nodes can be connected by strong edges or by weak edges. Since the nodes in a network can involve many aspects, network theory allows us to observe clusters of communication relationships created by the objects communicating within a network (Wheelen, & Hunger, 2012). These clusters link together to form organizational networks. Furthermore, advances in online communication have increased our ability to link with

others and grow our networks. The performance of any network depends on three principles: reciprocity, the degree with which people do similar tasks for one another; exchange, the degree with which people perform different tasks for one another; and similarity, the degree of similarity between the nodes of the group (Podrug, Filipović, & Kovač, 2017). This theory is important because it helps managers understand how networks work. For example the connection between the organization, the customers and the suppliers is supported by intensive information sharing.

2.4 Empirical Review

This part will review related and relevant literature on the variables of the study; customer relationship management practice, supplier relationship management practice, information sharing management practice and supply chain alertness.

2.4.1 Customer Relationship Management Practice on Firm Performance

Customer relationship management (**CRM**) is a process in which a business or other organization administers its interactions with customers, typically using data analysis to study large amounts of information. CRM systems compile data from a range of different communication channels, including a company's website, telephone, email, live chat, marketing materials and more recently, social media (Lozada-Contreras, Orengo-Serra, & Sanchez-Jauregui, 2021). They allow businesses to learn more about their target audiences and how to best cater for their needs, thus retaining customers and driving sales growth. CRM may be used with past, present or potential customers. The concepts, procedures, and rules that a corporation follows when communicating with its consumers are referred to as customer relationship management (CRM). This complete connection covers direct contact with customers, such as sales and service-related operations, forecasting, and the analysis of consumer patterns and

behaviors, from the perspective of the company. Customer Relationship Management (CRM) as a strategy is used to manage interactions with customers and potential customers. CRM helps organizations streamline processes, build customer relationships, increase sales, improve customer service, and increase profitability. The goal of a CRM system is simple: Improve business relationships (Copacino, 2019).

A firm's customer relationship practices can generate the organizational success in supply chain management practices efforts as well as its performance (Noe *et al.,* 2017). The success of supply chain management encompasses customer integration at the downstream and supplier integration at the upstream, considering that each entity in a supply chain is a supplier as well as a customer. In the competitive business, better relationship management with customers is crucial for organization success. Good relationship with business partners, including key customers are important role to success of supply chain management practiced by organization. Customer relationship recognized as an internal component of an organization's market strategy to increase sales and profits. Close customer relationship allow product differentiation from competitors, help sustain customer satisfaction and loyalty, and elevated the value provide to customer (Christopher, 2017).

At the most basic level, CRM consolidates customer information and documents it into a single CRM database so business users can more easily access and manage it. Over time, many additional functions have been added to CRM systems to make them more useful. Some of these functions include recording various customer interactions over email, phone, social media or other channels; depending on system capabilities, automating various workflow automation processes, such as tasks, calendars and alerts; and giving managers the ability to track performance and productivity based on information logged within the system (Benton, 2020).

Marketing automation. CRM tools with marketing automation capabilities can automate repetitive tasks to enhance marketing efforts at different points in the lifecycle for lead generation. For example, as sales prospects come into the system, it might automatically send email marketing content, with the goal of turning a sales lead into a full-fledged customer.

Sales force automation. Sales force automation tools track customer interactions and automate certain business functions of the sales cycle that are necessary to follow leads, obtain new customers and build customer loyalty.

Contact center automation. Designed to reduce tedious aspects of a contact center agent's job, contact center automation might include prerecorded audio that assists in customer problem-solving and information dissemination. Various software tools that integrate with the agent's desktop tools can handle customer requests in order to cut down on the length of calls and to simplify customer service processes. Automated contact center tools, such as chatbots, can improve customer user experiences.

Geolocation technology, or location-based services. Some CRM systems include technology that can create geographic marketing campaigns based on customers' physical locations, sometimes integrating with popular location-based GPS (global positioning system) apps. Geolocation technology can also be used as a networking or contact management tool in order to find sales prospects based on a location.

2.4.2 Supplier Relationship Management Practice on Firm Performance

In supply chain management strategies, supplier relationship activities play an important role. Long-term relationships refer to intention that the arrangement is not going to be temporary. Through close relationship supply chain partners are willing to share risks and reward, and maintain the relationship on long term basis. Moreover, a

long-term perspective between the buyer and supplier increase the intensity of firm-supplier integration (Liu, Prajogo, & Oke, 2016). Commitment of a buying firm to long-term relationships with major suppliers, shared goals and values with suppliers, and the involvement in supplier development initiatives are noted to increase the buying firm competitive performance. Further, it is important to note that the effectiveness of the supplier-buyer relationship is influenced by factors such as communication and information sharing, learning and the involvement of workers in the buying firm's programs, and similarities in technologies and industry.

The use of few suppliers enable effective communication and a supplier relationship that promotes the growth of SCM performance. Increased financial performance is a result of well-integrated industrial relations that leads to speedy delivery and quality of goods. Furthermore supplier's involvement in the design and development of new and existing products is easier when there are fewer suppliers as dealing with many suppliers for one product line is pricier than monitoring a single supplier. Worth noting is that involving suppliers early in the design and development of the product is essential towards enhancing the product development stage. The involvement of suppliers in the design and development leverages the level of communication between buyer and supplier, and is precarious for good relationships between these parties. This involvement also leads to satisfied customers who are actually the main target in the value chain because without them SCM is not significant in terms of the success of the SME manufacturer. In order for a manufacturing firm to be in a competitive environment its customers must take priority at a service delivery level that aims for shorter lead times (Abdallah, Abdullah, & Saleh, 2017).

2.4.3 Information Sharing Management Practice on Firm Performance

The sharing of information with supply chain partners is critical to the success of the supply chain. Information sharing is frequent information updating among the chain members for effective supply chain management." In this dynamic and unpredictable world, an organization's capability to access the right information at the right time holds the key to sustenance and longevity. As the suppliers are important and integral part of supply chain management and supplier management an important part of any organization's strategies, having the right information on suppliers and supplier's performance becomes imperative. Effective inter-organizational communication could be characterized as frequent, genuine, and involving personal contacts between buying and selling personnel (Alzoubia & Yanamandrab, 2020).

Information sharing has been shown to be one of the keys to successful supply chains. Information sharing has been shown to have a positive relationship with supplier performance and outsourcing success. This represents a change of strategy from previous years when suppliers, manufacturers and customers operated in their own silos and watched their supply chain partners experience the bullwhip effects. One of the most important implications for logistics strategy in the coming decades is the growing importance of information in logistics system design and operations (Cai, Huang, Liu, & Liang, 2016).

Information sharing is the basis for effective collaboration in a supply chain (Panahifar *et al.,* 2018). Although many researchers have reported that information sharing can increase supply chain performance, firms need to implement collaborative supply chain initiatives (Vendor Manage Inventory and joint decision-making) to achieve increased supply chain performance. With stiff competition, the best performing firms not only share information with their partners but also work closely with them to achieve

superior performance derived from activities such as collaborative planning and collaborative product development (Podrug, Filipović, & Kovač, 2017). The increased availability of information along a supply chain allows firms to better coordinate their activities with their partners leading to better performance for both the supply chain as a whole and its constituent firms. Sharing information such as order, demand and inventory can improve the performance of the supply chain and firms (Stadtler, 2015).

Knowledge sharing contributes to improvements in firm performance. It has a significant positive influence on firm performance. Knowledge sharing on either inventory or customer needs is positively associated with firm performance. Information sharing is positively related to firm performance. knowledge transfer improves a firm's performance within organizational groups. information sharing between buyer and supplier has a positive impact on strategic alliance formation, which in turn has a significant impact on firm performance. showed that knowledge sharing is positively related to a firm's overall alliance success. indicated that the supplier information sharing process may lead to significant improvements in cost, quality, and cycle time objectives (García-Alcaraz, JMaldonado-Macías, Alor-Hernández, & Sánchez-Ramírez, 2017).

2.4.4 Supply Chain Agility, Supply Chain Management Practices and Organizational Performance

Supply chains must adopt new strategies to improve their ability to respond rapidly and cost effectively to unpredictable changes in markets and increasing levels of environmental turbulence, both in terms of volume and variety. That is, supply chains need to have an agile approach to deal with all environmental changes. Agile Supply Chain (ASC) has been identified as one of the most important issues of contemporary supply chain management. In today's constantly changing environment, medium size

organization's supply chain agility is a critical element affecting its performance in terms of global competitiveness and providing sustainability (Mehralian et al., 2015). The agile approach is responsible for quick reaction to demand variations, generating an important competitive advantage. Along with many other strategies, sharing of information among their supply chain entities is the major strategy for achieving ASC (Stevens & Johnson, 2016).

Supply chain agility is a company's ability to smoothly and profitably respond to external market changes. Those changes themselves are multifaceted and interrelated, involving everything from evolution in consumer preferences to competitor disruption to broader economic and market volatility. Supply chain agility composes of supply chain alertness, accessibility, decisiveness and flexibility. The goal of supply chain agility mirrors its name — maintain fluid, responsive and data-informed supply chain logistics more primed to navigate inevitable industry change. Whether those changes are negative or positive, the company should be in a position to respond. Successful supply chain agility for manufacturers today relies on these core tenets: The understanding that external factors shape your supply chain logistics, no matter how steady things are now, the exploration of value chain components most affected by industry disruption; the integration of more proactive technology and process workflows to address value chain pain points and the ongoing monitoring and analysis of new processes, cross-function collaboration and production cost-savings, continuing to tweak practices if needed (Güner, Çemberci, & Civelek, (2018).

Before a business can respond to changes in its environment, it must first identify those changes. Truly agile companies have developed a high level of alertness. The alertness dimension requires sensing emerging market trends, listening to customers,

interchanging information with suppliers, monitoring demand, and sensing impending disruptions, be they natural or man-made disasters. The same concept lies within business and manufacturing, in which a business can respond to changes within its environment, but it must first identify the changes. Agile companies have a high level of alertness in areas such as market trends, listening to customers, information with suppliers and monitoring demand (Hachu, & Paul, 2018).

Alert organizations are those best positioned to forecast industry changes, growth opportunities, upcoming disruptions and competitor threats. The more alert and aware an organization is to these realities, the quicker they can respond to shifts in product demand, material procurement, supplier trends, customer feedback, market pricing and much more (Russell, & Swanson, 2019). The ability of being alert is seen as an important dimension of agility, as its roots are embedded in the competence to scan the environment in order to take advantage of opportunities or anticipate possible threats. It has to be added that the sooner changes can be detected, the sooner a proper response can be initiated. For a supply chain to be truly agile, a supply chain should be proficient in order to respond towards real demands. Alertness as an element of agility is crucial as a proper response would not be possible if a supply chain is not alert to changes within the surrounding environment. This ability manifests itself in the ability to monitoring market trends, analyzing demand through point of sale information and truly understanding customers' needs (Mahrinasari & Hasnawati 2020).

Agile organizations should possess the ability to make decisions resolutely and this is seen as the time elapsed from when an enterprise is presented with a stimulus, up until the enterprise initiates a response. It is suggested that as supply chains increase in complexity these decision-making skills gain importance and without the ability to being alert agility cannot be achieved. This leads us to the following dimension of

agility, which is accessibility, as decisions cannot be made without the accesses to information. Organizations must have information available in order to respond appropriately towards changes in the environment. An agile supply chain should be virtual and thus emphases the sharing of information throughout the entire supply chain. The access to information is seen as critical as supply chains should be built on information rather than inventory and by having information available can make decisions which are appropriate (Hussain, Abood, & Talib, 2018). Information systems have been thoroughly researched and it is evident that this is a key enabler of agility. The information should be timely and accurate, while this would only be beneficial if the various parties in the supply chain have access to the relevant information. One of the two mentioned underlying terms of agility, is speed. This is the ability to survive and prosper by quickly reacting towards customer driven demands and taking a proactive stance to retain market share. Following the ability to detect changes in the environment, it is important for an enterprise to be able to quickly implement these decisions. The term speed has been used to explain as to how quickly an activity could be completed, it has also been acknowledged as a key enabler of agility (Shi, & Behnia, 2020).

Table 2.1 Summary of Knowledge Gaps

Study		Major Findings	Limitations & gap
Vanichichinchai & Igel (2010)	Assessed relationship btw TQM, SCM and supply chain performance	SCM mediates positive relationship between TQM and supply performance	Supply chain agility and firm performance missing
Mwale & Nyamwange, (2014),	Supply chain management practices and organizational performance	supply chain management practices has a direct impact organization performance.	Mediating effect of supply chain alertness lacking
Chaghooshi *et al*., (2015)	Assess the relationship between SCQM and competitive advantage	SCQM positively impacts on firm's' competitive advantage Customer focus and quality play most critical role in the Relationship.	Supply chain alertness, supply chain management practices and firm performance missing
Nosratpour & Hamid (2015)	SCQM practices and performance	SCQM practices impacts Organizational performance positively.	Mediating role of supply chain alertness missing
Quang *et al.,* (2016)	Firm characteristic, SCQM and performance	FCAs moderate SCQM and performance relationship	Mediating role of supply chain alertness missing
Dhaigude & Kapoor (2017)	mediation role of supply chain agility on supply chain orientation and performance	supply chain orientation and supply chain agility are directly supply chain performance	Supply chain management practices missing
Abdallah *et al.,* (2017)	Trust, supplier integration and performance	Trust has positive impact on supplier integration and performance relationship	Mediating role of supply chain alertness missing
Hachu, & Paul (2018)	influence of supply chain agility on competitiveness	supply chain alertness led to better competitiveness	Supply chain management practices missing Mediating role missing
Alzoubia & Yanamandrab (2019)	mediating role of information sharing strategy on agile supply chain	information sharing plays a major mediating role in agile supply chain	Supply chain management practices missing
Nazempour, Yang & Javaid (2019)	effect of supply chain agility dimensions on supply chain performance	supply chain agility affects supply chain performance	Supply chain management practices missing
Mahrinasari & Hasnawati (2020)	mediating effect of strategic agility in the Relationship of supply chain management activities and firm performance	supply chain management activities affect strategic agility. Strategic agility affects firm performance	Supply chain management practices not clearly captured.

2.5 Conceptual Frame Work

The conceptual framework depicts independent, dependent and the mediating variables. The independent variables are information sharing, strategic supplier relationship and customer relationship. The dependent variable is firm performance and the mediating variable is quality supply chain process.


```
┌─────────────────────────────┐
│ Customer Relationship Mgt   │
│ Practice                    │
│ Customer needs analysis     │
│ Customer evaluation         │
│ Customer feedback           │
│ Customer interraction       │
└─────────────────────────────┘

┌─────────────────────────────┐      ┌──────────────────────┐      ┌──────────────────────┐
│ Supplier Relationship Mgt   │      │ Supply        Chain  │      │ Firm Performance     │
│ Practice                    │      │ Agility              │      │  • Profitability     │
│ Supplier involvement        │ ───▶ │ Alertness            │ ───▶ │  • ROA               │
│ Supplier intergration       │      │ Accessibility        │      │  • ROI               │
│ Supplier support            │      │ Decisive             │      │  • Productivity      │
│ Supplier training           │      │ Flexibility          │      └──────────────────────┘
└─────────────────────────────┘      └──────────────────────┘

┌─────────────────────────────┐
│ Information Sharing Mgt      │
│ Practice                    │
│ Inventory status sharing    │
│ Order status sharing        │
│ Demand status sharing       │
│ Trend analysis status sharing│
└─────────────────────────────┘
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Independent variables   **Mediating Variable**   **Dependent variable**

Figure 2.1 Conceptual Frame Work

Source: Researcher 2019

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

Research methodology refers to the system of methods or procedures used in sampling and collecting data required for a particular research. It is also the application of the principles of data collection methods and procedures in any field of knowledge. This section described the research design, target population, sampling techniques, data sources, data collection procedure, pilot study, validity and reliability of research instruments, data analysis, presentation and ethical considerations.

3.1 Research Design

The research design refers to the overall strategy chosen to integrate the different components of the study in a coherent and logical way, thereby, ensuring the research problem has been effectively addressed. It constitutes the blueprint for the collection, measurement, and analysis of data (Kothari, 2014). Explanatory research design was used in this study. Cooper & Schindler, (2016) notes that explanatory research focuses on why questions. In answering the `why' questions, the study is involved in developing causal explanations. This design was chosen because it applied closely to the research objectives of this study and was practical in testing the study hypothesis

3.2 Target Population

McCartan, (2016) defines target population as a universal set of all participants of a hypothetical or real set of events, people or objects of which the researcher uses to align the response result. The target population can be defined in terms of geographical location, age, income, and many other characteristics. According to Kenya Association of Manufacturers (KAM) directory 2018 there are 104 manufacturing firms operating in Coast region; this was the target population of this study.

3.3 Study Area

A study area is the geographical location where the target population, the sample size and thus the respondents are domiciled. The study area was the manufacturing firms in the Coast Region, Kenya. Cost region is the second largest region with a host of manufacturing firms.

3.4 Sampling Design and Sample Size

Sampling is the process of selecting a sufficient number of the right elements from the target population (Creswell, 2014). The sample is the specific group of individuals that a researcher will collect data from. The sampling frame is the actual list of individuals that the sample will be drawn from. Ideally, it should include the entire target population (and nobody who is not part of that population). This study adapted a census method. The census method is also called as a complete enumeration survey method wherein each and every item in the universe is selected for the data collection, or whenever the entire population is studied to collect the detailed data about every unit (Cooper & Schindler, 2016). Census was appropriate since the target population was small. Since this study used census method, the target population, the sampling frame and the sample size were the same as no sampling was done. Despite the statistical significance of sampling in research studies, census was recommended due to the small nature of the target population.

3.4.1 The Unit of Analysis and Unit of Observation

The unit of analysis is the entity that frames what is being looked at in a study, or is the entity being studied as a whole, within which most factors of causality and change exist. It is the type of unit a researcher uses when measuring the study variables (Bell, Bryman, & Harley, 2018). In this study, the unit of analysis was the manufacturing firms while the unit of observation was the procurement managers of the manufacturing

firms in Mombasa County as provided for in appendix IV. The procurement managers have intensive expert knowledge on procurement and performance of the manufacturing firms.

3.5 Data Types, Collection and Procedures

3.5.1 Types of Data

Primary data is a type of data that is collected by researchers directly from main sources through interviews, surveys and experiments. It is usually collected from the source-where the data originally originates from. The sources of primary data are usually chosen and tailored specifically to meet the demands or requirements of a particular research (Kothari & Craig, 2014). The ultimate objective of conducting primary research is to learn about something new that can be confirmed by others and to eliminate own biases in the process. This study used primary data to test the mediating effect of supply chain agility on supply chain management practices and performance of manufacturing firms in the Coast Region.

3.5.2 Data Collection Instrument

Data collection instruments refer to the tools employed in collecting data in a study (Saunders, et. al. 2019). This study employed structured questionnaires to collect primary data. Structured questionnaire is a preferred and efficient method of collecting first-hand information thus was ideal for this study because of its suitability to collect information that is not directly observable such as opinions or individual experience. Structured questionnaires are also easy to administer and analyze (Sekeran & Bounge, 2016). The questions were crafted using a Likert-type scales in a five point response categories to measure attitude and opinions. The five point Likert scale (1 = strongly

disagree to 5 = strongly agree) were developed for rating responses of independent, dependent and mediating variables (Hair *et. al.,* 2013).

3.5.3 Data Collection Procedures

Data collection started by ensuring the instrument is fit for the job. An introduction letter from Moi University and a research permit from NACOSTI were obtained and attached to the questionnaire as they are being distributed to the respondents. The respondents were then given time to fill in the questionnaires by way of ticking respective responses that were reflective of their opinion about the various statements in the questionnaire. The filled questionnaires were collected back by the researcher ready to be processed and analyzed. Where the respondents were not in a position to fill the questionnaire on the spot, they were allowed time to fill it at their own convenient time within the span of one week. Follow ups were in the form of phone calls and physical repeat visits which ensured increased response rate.

3.6 Pilot Study

A pilot study as a small study to test research protocols, data collection instruments, sample recruitment strategies, and other research techniques in preparation for a larger study. It is one of the important stages in a research project and is conducted to identify potential problem areas of the research instrument (Sounders et. al., 2019). In this study, a pilot study was carried on 15 firms in Mombasa County and reliability and validity tests was conducted.

3.6.1 Reliability Test

The reliability of an instrument is the measure of the degree to which a research instrument yields consistent results or data after repeated trials (Bell, et. al., 2018). Pilot study was done to determine the consistency of the questionnaire and to establish the

extent to which the questionnaire elicits the same responses every time it is administered. In order to test the reliability of the instrument, the Cronbach alpha test which is a measure of internal consistency was used in which closely relates a set of items are taken as a group. A "high" value of alpha often is used as evidence that the items measure an underlying (or latent) construct is sufficient. This study adopted a Cronbach Alpha score of 0.7 for all constructs and the results showed that all constructs had a score of above 0.7 and thus were all deemed reliable.

3.6.2 Validity Test

Instrument validity is quality attributed to proposition or measures of the degree to which they conform to establish knowledge or truth. An attitude scale is considered valid, for example, to the degree to which its results conform to other measures of possession of the attitude. In this case, to test the content validity of the instrument, the questionnaire was exposed to the two supervisors to ensure it had the correct content (Kothari, 2014).

3.7 Data Processing, Analysis and Presentation

The study collected primary data for dependent, independent and mediating variables from manufacturing firms Coast Region was processed, analysed and presented.

3.7.1 Data Processing

Data processing is a series of actions or steps performed on data to verify, organize, transform, integrate, and extract data in an appropriate output form for subsequent use (Sounders, et. al., 2019). The primary data was coded, cleaned, and entered into the computer for analysis using SPSS. The data was summarized and tabulated in order to see emerging trends and issues around specific themes, which were dependent on the variables and objectives of the study.

3.7.2 Data Analysis and Presentation

In this study quantitative analysis was conducted. Since the aim was to establish the degree and extend of association between variables, statistical analysis; descriptive analysis, correlation analysis and mediated multiple regression analysis were undertaken. Analysis of Variance (ANOVA), model summary, and hypotheses testing were conducted and descriptive statistics generated.

Correlation analysis was used to test the relationship between. The study of how variables are correlated is called correlation analysis. Correlations are useful because they explain relationship among variables and thus are used make predictions about future behavior (Creswell, 2014). A correlation coefficient indicates the value of a relationship and it has a value of between -1 and 1. A "0" means there is no relationship between the variables at all, while -1 or 1 means that there is a perfect negative or positive correlation. The correlation coefficient was used to explain the direction of the relationship between the independent, dependent and mediating variables.

In testing the extend of the relationship, the mediated multiple regression analysis was conducted. The multiple regressions analysis tested the significant of each variable at a confidence level of 95%. The regression equation of the study before mediation was applied as shown below;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where,

Y = Firm Performance

α = Constant

$\beta_1 \ldots \beta_3$= the slope representing degree of change in independent variable by one unit variable.

X_1= Customer Relationship Management Practice

X_2= Supplier Relationship Management Practice

X_3= Information Sharing Management Practice

ε = error term

In testing for mediating effect of supply chain alertness, the regression equation of the study was applied as shown below;

$$Y = \alpha + \beta_1 X_1 * A + \beta_2 X_2 * A + \beta_3 X_3 * A + \varepsilon$$

Where,

Y = firm performance

α = Constant

$\beta_1 \ldots \beta_3$= the slope representing degree of change in independent variable by one unit variable.

X_1= Customer Relationship Management Practice

X_2= Supplier Relationship Management Practice

X_3= Information Sharing Management Practice

A = Supply Chain Agility

ε = error term

Data was presented in tables.

3.7.3 Assumptions of the Multiple Linear Regression Model

a. Normality

Normality test is used to determine whether the data sets are normally distributed. Normality holds that the distribution of the test is bell-shaped with 0 (zero) mean, with

1 (one) standard deviation and a symmetric bell shaped curve (Saunders *et al.,* 2019). It is assumed that the residuals of variables will be normally distributed. That is, the errors in the prediction of value Y (the dependent variable) are distributed in a way that approaches the normal curve. This study tested normality using Kolmogorov-Smirnov test. The Kolmogorov Smirnov (K-S) tests the assumption that the sample data are drawn from a normally distributed population. If the results of the test are significant that is $p<0.05$ then rejecting the null hypothesis means rejecting the assumption of normality for the distribution (Bell, Bryman & Harley, 2018).

b. Linearity

The assumption of linearity was tested by creating a scatter plot using SPSS Statistics where the researcher will plot the dependent variable against the independent variable and then visually inspect the scatter plot to check for linearity. Where the relationship displayed in the scatter plot were not be linear, the transformation of the data was done. Also, the t-Test was used to examine whether there is some significant linear relationship between the independent and dependent variables or not (Kothari & Garg, 2014). The decision about the null hypothesis in a two-tailed test was taken by comparing the computed value and critical value of t distribution. The decision criteria was that the null hypothesis will be rejected at α x 95% level of significance when the computed value and critical value is lower than $-t\alpha/2$ or larger than $t\alpha/2$. Rejecting a null hypothesis means there is a significant linear relationship between the variables (Sekeran & Bounge, 2016).

c. Homoscedasticity

Heteroscedasticity was minimized or eliminated where possible by ensuring that the data used in hypothesis testing is approximately normal and is accurately transformed

and that the right functional forms of regression model are selected and variables presented by scatter plot diagrams of the dependent variable (DV) will widen or narrow as the value of the independent variable (IV) increases. The inverse of heteroscedasticity is homoscedasticity which indicates that a DV's variability is equal across values of an IV. At each level of the predictor variables(s), the variance of the residual terms should be constant (Bell, et. al., 2018).

d. Multicollinearity

Multicollinearity refers to the relationship between two or more exogenous variables, where the independent variables demonstrate little correlation with other independent variables (Hair, et al., 2013). Multicollinearity was dealt with by first establishing the inter-correlations between the independent variables and those correlations of 0.9 and higher will be seen as good candidates for deletion. Multicollinearity problem occurs when the independent variables are highly correlated to each other (Hair *et al.,* 2013). Therefore, when two or more variables are highly related, it means they contain unnecessary information. For this study multicollinearity was tested statistically by use of the VIF (Variance Inflation Factor). The VIF for a predictor indicates whether there is a strong linear association between itself and all the remaining predictors. VIF is a reciprocal of the tolerance. Larger VIF greater than 10 was indicative of Multicollinearity. However, the most reliable statistical test of multicollinearity was an examination of tolerance and Variance Inflation Factor (VIF) with the thresholds of more than 0.1 and VIF of 10 (Hair *et al.,* 2013).

e. Independence of Errors

The Durbin-Watson statistic was obtained to examine the independence of errors. The assumption of independence is given by

$$D = (e_i - e_i - 1)2$$

$ni = 2$

$i=2$

$n\ ei$

2 where $ei = yi - a -$

bxi ($i = 1, 2 \ldots., n$) are residuals. A value of D between 1 and 3 is usually considered to be accepted (Kothari & Garg, 2014). Serial correlation was tested using Durbin Watson test.

Table 3.1 Hypotheses Testing

Objective	Null Hypothesis	Type of Analysis	Interpretation
To determine the effects of customer relationship management practice on the performance of manufacturing firms in Coast Region, Kenya.	**H0$_1$**: Customer relationship management practice has no significant effect on the performance of manufacturing firms in Coast Region, Kenya.	Pearson Correlation Regression Analysis	If p-value < 0.05, Reject the null hypothesis.
To assess the effects of supplier relationship management practice on the performance of manufacturing firms in Coast Region, Kenya.	**H0$_2$**: Supplier relationship management practice has no significant effect on the performance of manufacturing firms in Coast Region, Kenya.	Pearson Correlation Regression Analysis	If p-value < 0.05, Reject the null hypothesis.
To analyze the effects of information sharing management practice on the performance of manufacturing firms in Coast Region, Kenya.	**H0$_3$**: Information sharing management practice has no significant effect on the performance of manufacturing firms in Coast Region, Kenya.	Pearson Correlation Regression Analysis	If p-value < 0.05, Reject the null hypothesis.
To establish the mediating effect of supply chain agility on the relationship of supply chain management practice and performance of manufacturing firms in Coast Region, Kenya.	**H0$_4$**: The mediating effect of supply chain agility has no significant effect on supply chain management practices and performance of manufacturing firms in Coast Region, Kenya.	Pearson Correlation Regression Analysis	If p-value < 0.05, Reject the null hypothesis.

Table 3.2 Variable Description and Measurement

Variable	Operationalization	Measurement
Customer Relationship Management Practice	• Customer need analysis • Customer evaluation • Customer feedback • Customer interaction	Five-Likert Scale
Supplier Relationship Management Practice	• Supplier involvement • Supplier integration • Supplier support • Supplier training	Five-Likert Scale
Information Sharing Management Practice	• Inventory status sharing • Order status sharing • Demand status sharing • Trends status sharing	Five-Likert Scale
Supply Chain Agility	• Alertness • Accessibility • Decisiveness • Flexibility	Five-Likert Scale
Firm Performance	• Profitability • ROA • ROI • Productivity	Five-Likert Scale

3.8 Ethical Considerations

This study was for academic purposes and the researcher purely used the information collected strictly for the purpose of this study. The information from all respondents was treated with high degree of confidentially. The identity and responses from the respondents were not disclosed. With the introduction letter from Moi university and the research from NACOSTI, respondent confidence was improved hence the response rate too.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.0 Introduction

This chapter presented the findings of the study based on the study objectives. Reporting of the general information, validity and reliability results, descriptive results, inferential results, modelling of the variables, hypothesis test results and a summary of key findings were presented.

4.1 Response Rate

The study sent out 104 questionnaire and 69 questionnaires were completely and correctly filled and returned. The collected questionnaires were used for the analysis in this study which translates to 66.3% response rate. Whereas a high response rate is desirable, this response rate of 66.3% is comparative higher than obtained in similar studies. Example, Fuchs, & Otto (2015) got a response rate of 24.4%, and Sukati, Hamid, Baharun, & Yusoff, (2012) got a 62% response rate. Therefore, this response rate was deemed suitable for the study.

Table 4.1 Response Rate

Sample Size	Responded	Response Rate
104	69	66.3

Source: Research Data, (2021)

4.2 Demographic Analysis

The experience of the respondent and the age of the firm were presented below.

4.2.1 Respondents Experience

The experience of the respondent were reported to a scale of 0-5, 5-10 and over ten years. The results are as shown in table 4.2 below.

Table 4.2 Respondents Experience

Respondents Experience (years)	Score	%
<5	13	18.8
5-10	34	49.3
Over ten	22	31.9
Total	69	100

Source: Research Data (2021)

From the results, 18.8% (13) of employees had stayed for less than five years. This small percentage may be an indication that in the last five years, there was minimal new employment that can be attributed to the harsh economic conditions in that period. While majority of the employees 49.3% (34) had been retained within five to ten years, only 31.9% (22) had stayed for over ten years.

4.2.2 Firm Age

This part reported on the age of the manufacturing firm to a scale of 5-10, 10-15 and over 15 years. The results are as shown in table 4.3 below.

Table 4.3: Firm Age

Respondents Experience (years)	Score	%
5-10	24	34.8
10-15	29	42.0
Over 15	16	23.2
Total	69	100

Source: Research Data (2021)

From the results, 34.8% (24) of the manufacturing firms were aged five to ten years. Majority of the manufacturing firms 42.0% (29) were aged between ten to fifteen years and only 23.2% (16) had been in operation for over fifteen years. This may be an indication that the manufacturing sector is very competitive and a host of challenges may be against sustainability of the firms in the sector.

4.3 Reliability and Validity Test

This study assessed convergent validity and uni-dimensionality of the constructs using the item loading in factor analysis. Only items loading strongly to one factor (loading>0.7) were retained to ensure convergent validity. All items that are retained loaded strongly to one construct thus demonstrating uni-dimensional. Additionally, the composite reliability (CR) and average variance extracted (AVE) values exceeded the thresholds of 0.70 and 0.50, respectively (Fornell & Larcker 1981, Chin 1998). All tests for discriminant validity showed all constructs were valid. Additionally, the KMO was 0.850 with a significant Bartlett's test.

Table 4.4 Reliability and Validity Test

Construct	Code	Indicator	Loading
Customer relation practices	CUSTO1	Management Continuously undertake customer need analysis	.790
	CUSTO2	Management undertake customer evaluation	.831
	CUSTO3	Management undertake on customer feed back	.841
	CUSTO4	Management work towards increased customer interaction	.689
Supply relation practices	SUPPLY		
	SUPPLY1	We continuously undertake supplier involvement in our firm	.710
	SUPPLY2	We continuously undertake supplier integration in our firm	.773
	SUPPLY3	We continuously undertake supplier support in our firm	.913
	SUPPLY4	We continuously undertake supplier training in our firm	.890
Information sharing practices	INFOM1	We continuously undertake inventory status information sharing	.840
	INFOM2	We continuously undertake order status information sharing	.843
	INFOM3	We continuously get information on market demand	.855
	INFOM4	We continuously get information on market trends	.837
Agility	ACA_1	…alertness	.749
	ACA_2	…accessibility	.769
	ACA_3	…decisiveness	.828
	ACA_4	…flexibility	.813
Performance	PERFOM1	we have financially better than our competitors	.647
	PERFOM2	We have better procurement process than competitors	.684
	PERFOM3	We have better returns on investments than competitors	.682
	PERFOM4	We have better returns on assets than competitors	.622

Source: Research Data, (2021)

4.3.1 Reliability

Reliability was tested using the Cronbach alpha. A Cronbach's alpha greater than 0.7 is considered acceptable. Results in table 4.4 shows that all the items had acceptable reliability (all greater than 0.7). The overall reliability is also acceptable (greater than 0.7).

Table 4.5 Cronbach's Test of Reliability

Variable/ Strategy	n	Cronbach's alpha	Decision
Customer Relationship Mgt Practices	4	0.845	Accepted
Supplier Relationship Mgt Practices	4	0.872	Accepted
Information sharing Mgt practices	4	0.895	Accepted
Supply chain Agility	4	0.99	Accepted
Performance	4	0.888	Accepted

Source: Research Data (2021)

4.4 Descriptive Analysis Results

Descriptive analysis was reported from the five variables of study; customer relationship management practices, supplier relationship management practices, information sharing management practices, supply chain agility and firm performance. The four indicators of customer practices assessed the extent managers provide the desired customer outcomes. In capturing the responses, a scale of 1 to 5 was used. No extent (1), Small extent (2), Moderate extent (3), Great extent (4) and Greatest extent (5). Higher values of the mean an indication of higher extent the management practices are geared towards desired customer relation. Low values of the mean suggest low extent the management practices favor desired customer outcomes.

4.4.1 Customer Relationship Management Practices in Manufacturing Firms

The effect of CRM on firm performance was reported here in. The result in Table 4.5 shows the mean and standard deviation of each item.

Table 4.6 Customer Relation practices In Manufacturing Firms

Customer Relation Practices Items	Mean	Std. D
Management Continuously undertake customer need analysis	2.72	.983
Management undertake customer evaluation	3.20	.901
Management undertake on customer feed back	2.62	1.001
Management work towards increased customer interaction	2.75	1.049
OVERALL	2.8261	.7956

Source: Research Data (2021)

The study found out that management undertake customer evaluation (Mean 3.20, SD 0.901) and Management work towards increased customer interaction (Mean 2.75, SD 1.049) contributed highly to performance of manufacturing firms in the Coast Region. On the other side, Management undertake on customer feedback (Mean 2.62, SD 1.001) contributed least to performance of manufacturing firms. On average, the respondents agreed to a moderate extent (Grand mean 2.83 rounded off to 3.0) that customer relationship management practices affect the performance of manufacturing firms in the Coast Region. This is supported by Copacino, (2019) who noted that the goal of CRM is to improve on business relationships thus high performance.

4.4.2 Supplier Relation Practices in Manufacturing Firms

The effect of supplier relationship management practice on performance of manufacturing firms in the Coast Region was analyzed. The mean and standard deviation of the constructs are shown in Table 4.7

Table 4.7 Supplier Relation Practices in Manufacturing Firms

Supplier Relation Practices Indicators	Mean	Std. D
continuously undertake supplier involvement in our firm	4.04	.652
continuously undertake supplier integration in our firm	4.03	.664
continuously undertake supplier support in our firm	4.03	.641
continuously undertake supplier training in our firm	4.05	.653
OVERALL	4.04	.572

Source: Research Data, (2021)

The study found out that continuously undertaking supplier involvement (Mean 4.04, SD 0.652) and continuously undertaking supplier integration (Mean 4.03, SD 0.664) contributed highly to performance of manufacturing firms in the Coast Region. On average, the respondents agreed to a great extent (Grand mean 4.04) that supplier relationship management practices affect the performance of manufacturing firms in the Coast Region. This is an indicative of a cordial firm-supplier relations in manufacturing sector. This conditions are important as they lead to favorable prices, generous terms, improved availability of the supplies. It is important to nurture relationships with key manufacturers and distributors (Sundram, et al 2016).

4.4.3 Information Sharing Practices and Firm Performance

The effect of information sharing practices on performance of manufacturing firms in Mombasa County was also analyzed. The mean, standard deviation, and interpretation of the findings for each indicator are shown in Table 4.8 below.

Table 4.8 Information Sharing Practices

	Mean	Std.D
We continuously undertake inventory status information sharing	2.78	.855
We continuously undertake order status information sharing	3.01	.883
We continuously get information on market demand	3.00	.907
We continuously get information on trends status sharing	2.95	.785
OVERRAL	2.94	.799

Source: Research Data (2021)

The study found out that continuously undertaking order status information sharing (Mean 3.01, SD 0.883) continuously getting information on market demand (Mean 3.00, SD 0.907) and continuously getting information on market trends (Mean 3.00, SD 0.891) contributed highly to performance of manufacturing firms in Mombasa County. On the other side, continuously undertaking inventory status information sharing (Mean 2.78, SD 0.885) contributed least to performance of manufacturing firms. On average,

the respondents agreed to a moderate extent (Grand mean 2.94 rounded off to 3.0) that information sharing management practices affect the performance of manufacturing firms in Coast Region. The benefits of information sharing include better and fast decision-making capabilities, stimulates innovation and growth, and build a learning organization and exploitation of know-how. Information sharing can improve performance of the supply chain and its firm (Stadler, 2015).

4.4.4 Supply Chain Agility and Manufacturing Firms

The effect of supply chain agility on performance of manufacturing firms in Mombasa County was measured. The mean, standard deviation, and interpretation of the findings for each indicator are shown in Table 4.9 below.

Table 4.9 Supply Chain Agility and Manufacturing Firms

	Mean	Std. D
Alertness	3.59	.896
Accessibility	3.43	.931
Decisiveness	3.62	.876
Flexibility	3.72	.784
Supply Chain Agility; Overall	**3.59**	**.772**

Source: Research Data (2021)

The study found out that supply chain flexibility (Mean 3.72, SD 0.784), and supply chain decisiveness (Mean 3.62, SD 0.876) contributed highly to performance of manufacturing firms in Mombasa County. On the other side, supply chain accessibility (Mean 3.59, SD 0.896) contributed least to performance of manufacturing firms. On average, the respondents agreed to a great extent (Grand mean 3.59 rounded off to 4.0) that supply chain agility affects the performance of manufacturing firms in Coast Regionx. The ability to respond to supply chain changes leads to organizations to make better decisions which lead to increased performance (Shi, & Behnia, 2020).

4.4.5 Performance of Manufacturing Firms

The performance of manufacturing firms in the Coast Region was measured and the results were reported in table 4.10 below.

The results show all the four construct; profitability (Mean 3.93, SD .743), return on investment (Mean 3.84, SD .669), financial performance (Mean 3.81, SD .601) and return on assets (mean 3.72, SD .705) respectively to a great extend contributed to performance of manufacturing firms in the Coast Region. On average the respondents agreed that the four constructs to a great extend (Mean 3.823 SD .53) influences performance of manufacturing firms in the Coast Region.

Table 4.10 Performance of Manufacturing Firms

Indicator	Mean	Std. D
we have better productivity than our competitors	3.81	.601
We have better profitability than competitors	3.93	.734
We have better returns on investments than competitors	3.84	.699
We have better returns on assets than competitors	3.72	.705
Overall performance	**3.823**	**.553**

Source: Research Data (2021)

4.5 Correlation Analysis Results

Correlation analysis assesses the relation between two or more variables. It ranges from negative strong correlation (-1), no correlation (0) to strong positive correlation (+1). This section tested the correlation between the study variables and the results are shown below in table 4.11.

Table 4.11 Correlation Results

| | | Correlations | | | | |
		CUSTOMER	SUPPLY	INFO	AGILITY	PERF
CUSTOMER	Pearson Correlation	1				
	Sig. (2-tailed)					
SUPPLY	Pearson Correlation	.107	1			
	Sig. (2-tailed)	.382				
INFOR	Pearson Correlation	.314**	.279*	1		
	Sig. (2-tailed)	.009	.020			
AGILITY	Pearson Correlation	.184	.469**	.590**	1	
	Sig. (2-tailed)	.130	.000	.000		
PERF	Pearson Correlation	.308**	.613**	.346**	.547**	1
	Sig. (2-tailed)	.010	.000	.004	.000	

Source: Research Data (2021)

From the findings, customer relation practices had a positive and significant correlation ($r=.308$, $p=.010$) with performance, supplier relation practices had a positive and significant correlation ($r=.613$, $p<.001$) with performance, information sharing practice had a positive and significant correlation ($r=.346$, $p<.004$) with performance, and lastly supply chain agility (SCA) is positive and significantly associated ($r=.547$, $p.<.001$) with performance of manufacturing firms. Generally, the results suggest that firms with effective buyer seller relation in terms of caring for suppliers and customers, agility, and also share information, outperform organization with poor buyer-seller relations. The results justifies the need for organization to promote an environment that favors development of competencies and ability to smoothly respond to market changes. Management practices that are favorable in terms customer and supplier relation and effective information sharing enhance an organizations ability to perform better (Stadler, 2015).

4.6 Mediated Multiple Regression Analysis

Mediated multiple regression analysis was carried to test the mediating effect of supply chain agility on supply chain management practices and performance of manufacturing firms in the Coast Region. But first, the assumptions of Mediated multiple regression analysis were tested and the results were presented below.

4.6.1 Mediated Multiple Regression Assumptions Tests

To test the research hypotheses on the mediation effect of supply chain agility on the relationship between supply chain management practices and performance of manufacturing firms, the significance of the regression coefficients of the regression model which ware estimated using Ordinary Least Squares was used to either reject or fail to reject the hypotheses. The accuracy of these estimates was based on the assumptions that the data meets the OLS assumptions. The assumptions of normality, constant variance, linearity and multicollinearity forms were tested.

Normality assumptions which states that the regression residuals are normally distributed was tested using the plot of the histogram of residuals. The shape of the histogram should resemble the bell shaped distribution for the assumption to be met. The histogram of residuals obtain (figure 4.1) has roughly normal shape thus it is concluded that the normality assumption was met.
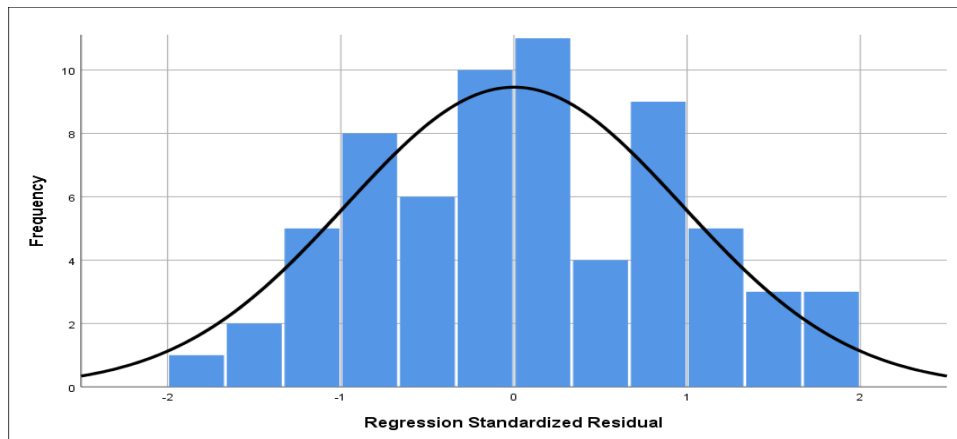
Figure 4. 1. Histogram on Normality Assumption Test

Source: Research Data (2012)

No heteroscedasticity assumption; The other assumption is that the variance (errors) is constant across all values of the dependent variable. The plot of residuals against predicted values is one of the visualization ways in residual analysis used to test the assumption. Plots should not show any patter for the assumption to be met (The scatter plot points do not show any apparent pattern as they seem to be distributed randomly across both the x- and the y- axes, indicating the assumption is met.

Figure 4.2: Scatter Plot of Standardized Residuals versus Standardized Predicted Values

Source: Research Data (2021)

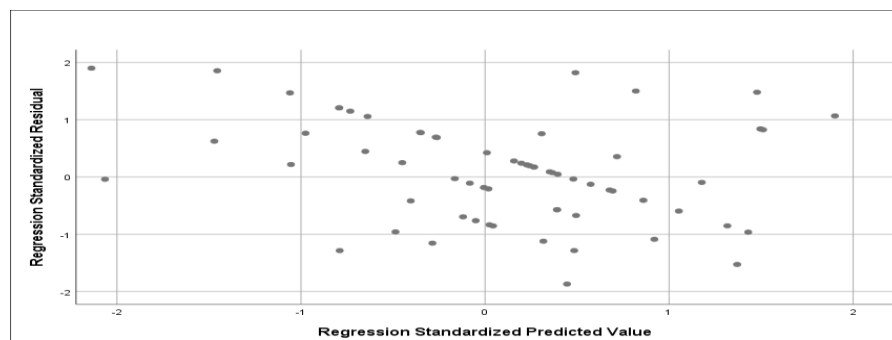The linearity assumption states that there is a linear relation between the set of IVs and the DV in the model. Using the residual analysis, the scatter plot of residuals versus predicted values is used to assesses linearity assumption. The regression line (x=0) divides the plots into two roughly equal halves when the assumption is not significantly violated. As seen in the scatter plot Figure 4.2 the plot points are evenly distributed on both sides of the regression line (x=0) and therefore the linearity assumption is met.

The no multicollinearity assumption states that independent variables in the model should not be highly correlated to avoid inflating the estimates. The Variance inflation Factor, VIF, was used to assess the assumption. VIF values less than 10 are considered as indicators of no significant multicollinearity. The results in Table below confirms that the assumption is met; all VIF values are less than 10. The implication of this result is that the regression estimates of this study are not significantly inflated.

Table 4.12 Multicollinearity Assumption Test

Variable	Tolerance	VIF
CUSTOMER	.291	3.435
SUPPLY	.472	2.121
INFORMATION SHARING	.551	1.813
AGILITY	.165	6.055

Source: Research Data (2021)

To this end, the assumptions are not significantly violated. Going forward, the results means that the estimated regression results obtained in hypothesis testing are therefore credible to accurately assess the mediating effect of supply chain agility on the relation between supply chain management practices and performance of manufacturing firms.

4.6.2 Path Results and Hypotheses Testing

The study model had 3 direct paths and four indirect paths where each path corresponds to a hypothesis to be tested by computing the path coefficients. The path coefficients were estimated using the AMOS software because of its ability to compute both the

direct and indirect coefficients with their associated p values. The bootstrap p values were estimated to evaluate if the path is significant or not. The fitted path model shown in Figure 4.3, together with the results in Table 4.13 provided for testing the hypotheses.

The first H_{01a} that claimed that customer relation has no significant effect on performance of manufacturing firms, is not supported (βCUST-PERFO=0.288, p=0.011). Therefore the research hypotheses H01a is rejected in favor of its alternative. The results are significant for manufacturing firms as they confirm that customer relation can transform performance of firms in the manufacturing sector.

The second hypotheses H_{01b}, envisaged that no significant relation between customer and Supply Chain Agility The hypothesis is rejected (βCUST-AGILTY=0.452, p=0.004) in favor of its alternative. The results are significant to manufacturing firms in their goals to achieve agility.

The set of hypotheses H_{02a} and H_{02b} proposed the direct relation between supply chain practices as predictors of performance and also supply chain Agility (H02a Supply practices has no significant effect on performance, H_{02b} Supply practices has no significant influence on supply chain agility). The H02a and H02b are both rejected as indicated by p values OF less than 0.05, (H02a: βSUPPLY-PERFO=1.208, p<0.001) and (H_{2b}, βSUPPLY=>AGILITY =0.883, p<0.001). It is therefore concluded that supply chain agility has a significant positive effect on Performance. And also supply chain practices have a significant positive effect on supply chain agility.

The third set of hypotheses H_{03a} and H_{03b} argued on no relation between information sharing and performance (H_{03a}) and also on no relation between information sharing and SCA (H_{03b}). The results show that H_{03a} is not supported ((βINFO-PERFO=0.664, p<0.001) since the p value is less than the 0.05 significant level. This means that

Information sharing has a significant influence on Performance. However, no statistical evidence to reject H_{03b} (βINFO-AGILITY =0.041, p=0.823) as the p value is greater than 0.05 indicating that Information Sharing has no significant influence on Supply Chain Agility.

Table 4.13 Regression Coefficients

PATH			B	S.E.	C.R.	P	Hypothesis Result
Performance	<--	CUSTOMER	.288 (.414)	.114	2.532	.011	H_{01a} Rejected
Agility	<--	CUSTOMER	.452 (.466)	.158	2.863	.004	H_{01b} Rejected
Performance	<--	SUPPLYPRACTICES	1.307 (1.208)	.280	4.660	.000	H_{02a} Rejected
Agility	<--	SUPPLYPRACTICES	1.333 (.883)	.379	3.513	.000	H_{02b} rejected
Performance	<--	INFORATIONSHARING	.459 (.664)	.120	3.819	.000	H_{03a} Rejected
Agility	<--	INFORATIONSHARING	.039 (.041)	.177	.223	.823	H_{03b} not Rejected
Performance	<--	AGILITY	.227 (.317)	.082	2.753	.006	H_{04} Rejected

NOTE: The standard estimates are in brackets ( )

Source: Research Data (2021)
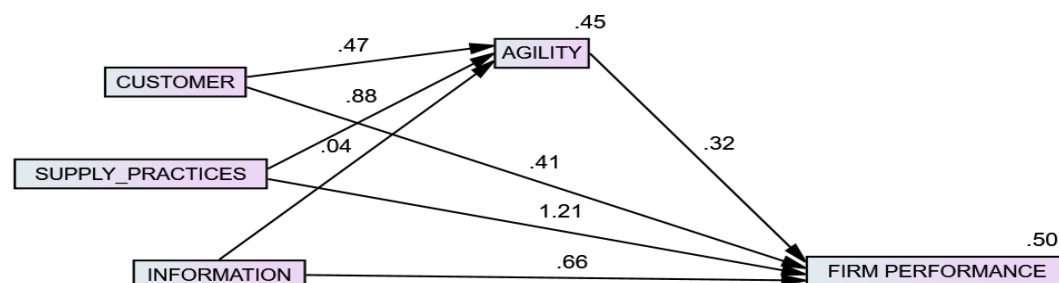
Full mediation model results

Figure 4.3: Path Model Showing Standardized Path Coefficient

NOTE: Path coefficient are shown on each arrow, Coefficients of Indirect paths are not shown on the diagram; they are computed by multiplying the Paths along the path

In assessing and interpreting mediation effect, it should be clarified that significant indirect path coefficient ($\beta_{Iv\text{-}>Mediator\text{-}>DV}$) indicates significant mediation. However, the nature of the mediation is defined by the significance of the corresponding direct path coefficients ($\beta_{IV\text{-}>DV}$). mediation is either complete mediation (if $p>.05$) or partial mediation (if $p<.05$). The results in Table 4.14 is a summary of mediation test to assess the three mediation hypotheses H_{05a}, H_{05b} and H_{05c}.

Table 4.14 Direct and indirect path coefficients Results for Mediation Test

PATH	β , (p)	Hypothesis Result
CUSTOMER=>SCA=>PERFOMANCE	0.154,p=.019	Reject H_{05a}
CUSTOMER=>PERFOMANCE	0.414, P=0.011	(Partial mediation)
SUPPLY=>SCA=>PERFOMANCE	0.282, p =0.018	Reject H_{05b}
SUPPLY=>PERFOMANE	1.208, P<.001	(Partial mediation)
INFOMATION=>SCA=>PERFOMANCE	0.013, p=0.631	Fail to Reject H_{05c}
INFOMATION=>PERFOMANCE	0.664, P=0.001	(No mediation)

SCA; Supply Chain Agility.

Source: Research Data (2021)

The indirect path (CUSTOMER=>AGILITY=>PERFOMANCE) is significant ($\beta=0.154$, $p=0.019$) an indication of significant mediation effect. The hypothesis that agility has no mediating effect on the customer - performance relation is rejected in favor of its alternative. H_{05a} rejected. This results are significant as they suggest that agility can re-engineer customer relation into superior performance. Since the direct path (CUSTOMER=> PERFOMANCE) is significant as well ($\beta=0.414$, $p=0.0011$), then collectively, the results shows that the mediation of agility is partial. These results reveal the dual contribution of customer relation competencies on performance of manufacturing firms directly and indirectly. A unit improvement in customer relation contribution 0.414 units of performance directly and a further 0.103 units of performance via Supply Chain Agility.

The hypotheses H_{05b} postulate that agility has no significant mediation in supply performance relation. Results in Table 4.11 shows that the indirect path from supply relation to firm performance via SCA is significant (β=0.282, p=0.018, an indication of significant mediation, H_{05b} is thus rejected. Since the direct path from supply to customer is significant as well, then the mediation is partial as well.

And, the hypotheses H_{05c} postulate that agility has no significant mediation in information sharing - performance relation. Results in Table 4.11 shows that the indirect path from Information Sharing to Firm Performance via SCA is NOT significant (β=0.013, p=0.631), an indication of no significant mediation, H_{05c} is thus rejected. The significant contribution of Information Sharing is thus direct ((β=0.664, p<0.001)

In sum, the results show that the two indirect paths are significantly mediated by SCA.; only the information sharing not mediated. Overall, SCA mediates the supply management practices in firms in manufacturing sector. The results further shows that management practices (customer, information sharing and supply relation practice), collectively account for 45 percent (R^2=0.45) of SCA manufacturing sector firms. Also, the three antecedent account for 50% (R^2=0.50) of performance.

4.7 Discussion of Key Findings

Data supported the research hypothesis advancing that customer relation is central in achieving superior performance as indicated by significant path coefficient ($\beta_{CUSTO-PERFO}$=0.414, p<0.001). The positive relation is mediated by SCA. Omoush, (2020) also found a significant mediation effect between customer and performance of pharmaceutical companies.

The findings emphasize the critical position of customers' relationship management practice in enhancing agility as well as on a firm's competitive position in supply chain. The study explains the importance of customer focused activities as means firms can directly realize superior performance. By undertaking customer need analysis, evaluation and feedback, the interactions enables the better collaboration with customers and enable the organization have a competitive advantage by better designing product and services that best meets the customer expectations for superior supply chain success and overall organizational performance. Partial mediation of supply chain agility demonstrate that the firm performance variability due to customer relation practices is directly explained by the practices and partly through the agility. Extending these findings, the notion of supply chain success can be achieved if both customers' issues are aligned to supporting both Supply Chain Agility and customer relation within an organization than focusing only on only one; supply relation or agility alone. The study hypothesis linking Customer relation practices on agility is supported as indicated by significant path coefficient linking customer practices on agility ($\beta_{CUSTOMER\text{-}AGILITY}$=0.364, p<.001) thus it positions customer relation as a critical component of a firms competitive advantage given its ability to achieve customer-focused supply chain agility and enable the organization adapt firm services products sufficiently fast to new customer requirements, react adequately fast to supply-side changes, e.g., compensate for spontaneous supplier outages, delivery failures, market shortages, react to significant increases and decreases in demand as fast as required by the market and adjust firm product portfolio as fast as required by the market. Gligor, Esmark, & lcomb, (2015) found a significant mediation effect of customer relation on performance.

Data also supported the argument that supplier relationship management practice is an important component of firm performance and agility in supply chain. In particular, considering the effect of supply relation alone on performance and supply chain agility, the data revealed that Supply Relation Practices enhance performance ($\beta_{SUPPLY=>PERF0}$= 1.208, p<0.001) and enhances supply chain agility (($\beta_{Supply-Agility}$=0.88,p<.001). The research view that SCA has a significant mediation effect on the supply practices and performance relation is supported in manufacturing sector. The findings are plausible since supply chain success is critical in acquiring right materials at right time and place necessary for good performance. Promoting enablers of both supply chain agility and supplier relation is critical components of supply chain success and by extension performance of an organization. In this Supply-Agility-Performance interplay, successful management is one that create an environment to nurture both agility and suppler relation (Guner, et. al. 2018).

The simple effect of information sharing model, results confirmed that information sharing has positive influence on performance ($\beta_{INF-->PERF}$=0.664, p<.001) and Supply chain agility ($\beta_{INFO-->Agility}$=0.04, p=0.823). Information sharing enables workers and significant people in the supply chain to access and share valuable information to help them connect, become more alert, confident intelligent and perform better. In practice, the study has shown why the management should strengthen both information sharing and agility enablers in their quest to achieve desired goals in supply chain and by extension overall organizational performance. This is supported by Stadler, (2015) who noted that information sharing can improve firm performance.

The mediated model results showed the a significant variance of agility (45%) these results are significant given that only three factors were considered and yet there are numerous determinants of supply chain agility within manufacturing sector. Agility and

management practices collectively account for 50% of performance differences in manufacturing sector. These are also important findings indicative of the good predictive power of performance from only two factors; Agility and supply chain practices. The results underpin the significant position of supply chain practices as a fundamental pillar in organizations supply chain success and firm performance. The study confirmed the critical role of supply chain agility has on a firm's source of competitive advantage in this age of increased importance 'knowing your customer'. Agile companies have a high level of alertness in areas such as market trend, listening to customers, sharing information with suppliers and monitoring demand (Hachu & Paul, 2018).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The purpose of this chapter was to present the summary of the findings, the conclusions drawn from the findings and the recommendations. The first section provides the summary of the key findings under each objective. The second section provides the conclusions drawn based on the findings. The last section provides the recommendations and suggestion for future study.

5.2 Summary

The study assessed the mediation effect of SCA on the supply chain practices (SCP) and performance in which the SCP were conceptualized as three components; customer relationship management practice, supplier relationship management practice and information sharing management practice components.

On customer relationship management practice, the study found out that customer relationship management practice is a significant predictor of firm performance in manufacturing firms in Mombasa County. Thus supporting the research view that increasing customer relationship management practice competencies in an organization creates efficiency along the supply chain thus increase the performance of the manufacturing firms. The mediation results showed that supply chain agility partially moderates the relationship between customer relationship management practice and the performance of manufacturing firms in the Coast Region. The findings present the empirical justification as to why good customer relations management and sustainable supply chain agility are important considerations in the performance of manufacturing firms.

On supplier relationship management practice, **t**he study found out that supplier relationship management practice has a significant effect on the performance of manufacturing firms. This direct effect of supplier relationship management practice on performance of manufacturing firms was confirmed since the customer=performance path is significant. The mediation results showed that supply chain agility partially moderates the relationship between supplier relationship management practice and the performance of manufacturing firms in the Coast Region. Mediation results showed that the indirect path was significant thus suggesting that supply chain agility contributes significant performance over and above the contribution by supplier relationship management practice alone. The results underline the need for competencies that nurture both supply chain agility and supplier relationship management practice as two distinct but related components of firm performance. The study data confirmed the central role of supply chain agility in transforming supplier relationship management practices in the performance of manufacturing firms.

On information sharing management practice, the study found out that information sharing management practice significantly affect the performance of manufacturing firms in Mombasa county. Firms benefit from information sharing especially on market demands and trends and this increases their performance. The mediation test results indicated that supply chain agility does significantly mediate the relationship between information sharing management practice and performance of manufacturing firms in the Coast Region.

The overall purpose and concern of the study was drawn to the supply chain agility concept as an alternative driver of firm performance in the framework of supply chain

management practices and firm performance. The mediation results confirmed that considering supply chain agility and supply chain management practices of customer relationship management practice, supplier relationship practice and information sharing management practice, collectively, the firm revitalize significant performance.

5.3 Conclusions

Based on the findings, the study concluded that;

Customer relationship management practice is an important predictor of performance of manufacturing firms in the Coast Region. Further, supply chain agility positively and partially mediates the relationship between customer relationship management practice and performance of manufacturing firms in the Coast Region.

Supplier relationship management practice is an important predictor of performance of manufacturing firms in the Coast Region. Further, supply chain agility positively and partially mediates the relationship between supplier relationship management practice and performance of manufacturing firms in the Coast Region.

Information sharing management practice is an important predictor of performance of manufacturing firms in the Coast Region. Further, supply chain agility does not significantly mediate the relationship between Information sharing management practice and performance of manufacturing firms in the Coast Region.

5.4 Recommendations

Based on the study conclusions, the study recommends that;

5.4.1 Managerial Recommendations

1. Manufacturing firms in Kenya should put in place mechanisms of strengthening customer relationships in ways that also strengthen response to market dynamics.

2. There is need for the management of the manufacturing firms to strengthen supplier relationships as this leads to increased firm performance.

3. There is need for management to strengthen information sharing practices as it leads to increased firm performance.

4. Manufacturing firms should embrace supply chain agility as it mediates the relationship between supply chain management practices and firm performance.

5.4.2 Policy Recommendations

1. Stakeholders should work hand in hand to increase information sharing so as to improve the supply chain performance.

2. Stakeholders should work together to support and improve on supply chain agility so as to improve on firm performance.

5.5 Limitations of the Study

The study was carried out at working hours and many of the respondents were going on with their duties. This was overcome by arranging meeting when the staff had little work in their trays. Further, respondents were not cooperative at first because they thought the researcher was bound to gain materially from the study. This was overcame by presenting the introduction letter, the research permit from NACOSTI and a further explanation that the study was for academic purposes.

5.6 Suggestions for Future Study

While this study was on the effect of supply chain management practices, supply chain agility and firm performance, there is need to do a similar study in a different industry especially the hotel industry. A further study can be done on the direct effect of supply chain agility and performance of firms in other industries.

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APPENDICES

Appendix I: Introduction Letter

<div align="right">

Mwenyealy Mohamed

P.O. Box 3735-80100,

Cell 0726 373492

Mombasa.,

18th May, 2021

</div>

To Procurement Manager,

Manufacturing Firms,

Mombasa County.

Kenya

Dear Sir/ Madam,

RE: REQUEST FOR PERMISSION TO COLLECT RESEARCH DATA

I am a student at Moi University Coast Campus pursuing a Degree of Masters in Logistics and Supplies Management. Pursuant to the pre-requisite course work, I would like to conduct a research tittled '**THE MEDIATING EFFECT OF SUPPLY CHAIN ALERTNESS ON SUPPLY CHAIN MANAGEMENT PRACTICES AND PERFORMANCE OF MANUFACTURING FIRMS IN MOMBASA COUNTY'.**

Kindly completet the attached questionnaire. Data collected shall be treated with utmost confidentiality and strictly will be used for academic pursposes only.

Thanking you in advance as I look forward for your cooperation.

Yours faithfully,

Mwenyealy M. Mohamed

Student, School of Business and Economics

Appendix II: Research Questionnaire

SECTION A

Please give answers in the spaces provided and tick ($\sqrt{}$) in the box that matches your response to the question where applicable.

Part A: Demographic and Respondents Profile

1. Name of your company (Optional) ……………………………………………

2. For how long have you worked as a procurement manager?

    a. Less than five years   ( )

    b. 5 – 10 years   ( )

    c. Over 10 years   ( )

3. For how long has your firm been in operation in Mombasa County?

    a. 5 – 10 years   ( )

    b. 10 – 15 years   ( )

    c. Over 15 years   ( )

SECTION B

Part B: Mediating Effect of Supply chain alertness, supply chain management practices and firm Performance.

In this section the study is interested in your view on how your firm has performed as a result of a number of suply chain management practices. The study wants to know your firm performance in relation to your expectation and in relation to your colleagues in your principal industry. Please rate the following statements carefully and tick the appropriate category.

In a scale of 1-5, where; 1 = No Extent; 2= Small Extent; 3= Moderate Extent; 4= Great Extent and 5= Greatest Extent.

B. Effect of Customer Relationship Management Practice on Firm Performance

In a scale of 1-5, where; 1 = No Extent; 2= Small Extent; 3= Moderate Extent; 4= Great Extent and 5= Greatest Extent.

Please indicate with a tick the extent to which customer relationship management practice on the performance of your manufacturing firm

B. In the last five years or since inception, relative to other firms, our firm has experienced performance that can be attributed to Customer Relationship Management Practice	**1**	**2**	**3**	**4**	**5**
B1. We continuously undertake customer need analysis					
B2. We continuously undertake customer evaluation					
B3. We continuously undertake customer feed back					
B4. We continuously encourage customer interaction					

C. Effect of Supplier Relationship Management Practice on Firm Performance

In a scale of 1-5, where; 1 = No Extent; 2= Small Extent; 3= Moderate Extent; 4= Great Extent and 5= Greatest Extent.

Please indicate with a tick the extent to which supplier relationship management practice has affected performance of your manufacturing firm.

C. In the last five years or since inception, relative to other firms, our firm has experienced performance that can be attributed to Supplier Relationship Management Practice	**1**	**2**	**3**	**4**	**5**
C1. We continuously undertake supplier involvement in our firm					
C2. We continuously undertake supplier integration in our firm					
C3. We continuously undertake supplier support in our firm					
C4. We continuously undertake supplier training in our firm					

D. Effect of Information Sharing Management Practice on Firm Performance

In a scale of 1-5, where; 1 = No Extent; 2= Small Extent; 3= Moderate Extent; 4= Great Extent and 5= Greatest Extent.

Please indicate with a tick the extent to which information sharing management practice has affected performance of your manufacturing firm

D. In the last five years or since inception, relative to other firms, our firm has experienced performance that can be attributed to Information Sharing Management Practice.	**1**	**2**	**3**	**4**	**5**
D1. We continuously undertake inventory status information sharing					
D2. We continuously undertake order status information sharing					
D3. We continuously get information on market demand					
D4. We continuously get information on market trends					

E. Mediating effect of Supply Chain Agility on Supply Chain Management Practice on Performance

In a scale of 1-5, where; 1 = No Extent; 2= Small Extent; 3= Moderate Extent; 4= Great Extent and 5= Greatest Extent.

Please indicate with a tick the extent to supply chain alertness has affected the Performance of your manufacturing firm

E. In the last five years or since inception, relative to other firms, our firm has experienced performance that can be attributed to supply chain agility.	1	2	3	4	5
E1. We continuously detect changes in the supply chain					
E2. We continuously detect opportunities in the supply chain					
E3. We continuously detect threats in the supply chain					
E4. We continuously respond to changes in the supply chain					

F: Measurement of Performance of Manufacturing Firm

In a scale of 1-5, where; 1 = No Extent; 2= Small Extent; 3= Moderate Extent; 4= Great Extent and 5= Greatest Extent.

Please indicate with a tick the extent to which supply chain management practices have affected the performance of your manufacturing firm.

F. In the last five years or since inception, relative to other firms, our firm has experienced	**1**	**2**	**3**	**4**	**5**
F1. Increased Profits					
F2. Increased ROA					
F3. Increased ROI					
F4. Increased Production					

THANK YOU

Appendix III: List Of Manufacturing Firms In Coast Region

1. African Marine & General Engineering Co Ltd
2. All Fruit Epz Ltd
3. Ashton Apparel (Epz) Limited
4. Atlas Copco Eastern Africa Ltd
5. Bahari Tea Company Limited
6. Bamburi Special Products Ltd
7. Beta Healthcare
8. Bidco Oil Refineries Limited
9. Bilco Engineering
10. Blue Ring Products Ltd
11. Blue Triangle Cement
12. Bobmil Industries Limited
13. Bogani Industries Ltd
14. Bosky Industries Ltd
15. British American Tobacco Kenya
16. Brollo Kenya Limited
17. C. Dormans Ltd
18. Chandaria Industries Limite
19. Chevron Kenya Ltd
20. Chloride Exide Kenya Limite
21. CMC MOTORS
22. Coastal Bottlers Ltd
23. Company Limited.
24. Company Ltd
25. Cook N Lite Limited
26. Corrugated Sheet Limited
27. Creative Innovations Ltd.
28. Crown-Berger (K) Ltd.
29. Crystal Adhesives Ltd
30. Devchand Keshavji (Kenya) Limited
31. Dhanjal Brothers Ltd
32. Doshi Group Of Companies
33. E A Motor Industries Ltd.
34. East Africa Glassware Mart Ltd
35. East African Breweries Limited
36. East African Cables Ltd
37. East African Portland Cement
38. Energy Regulatory Commission
39. Equatorial Tea
40. Fairdeal Upvc, Aluminium And
41. Farmers Choice Lt
42. Foam Mattress Ltd
43. Gahir Engineering Works Ltd
44. Glass Ltd
45. Global Tea & Commodities (K) Ltd
46. Gold Crown Foods (Epz) Ltd.
47. Imani Workshops
48. Kapa Oil Refineries Limite

49. Kenya Adhesive Products Ltd
50. Kenya Bixa Limited
51. Kenya Electricity Generating
52. Kenya Petroleum Refineries Ltd
53. Kenya Power And Lighting
54. Kenya Solar
55. Kenya Suitcase Manufacturers Limited
56. Kitui Flour Mills Limited
57. M J Clarke Limited
58. Milly Food Processing
59. Milly Glass Works Ltd
60. Mohajan Trade International
61. Mombasa Canvas
62. Mombasa Cement Limited
63. Mombasa Maize fEEDS Limited
64. Mombasa Maize Millers Limited
65. Mzuri Sweets Ltd (P1)
66. Mzuri Sweets Ltd (P2)
67. Packaging Industries Ltd
68. Pelican Signs Ltd
69. Pwani Oil Products Limite
70. Revital Health Care (Epz) Limited
71. Rhino Special Products Ltd
72. Salt Manufacturers Kenya Ltd
73. Sameer Group
74. Shankan Enterprises Ltd
75. Slumberland Kenya Ltd
76. Springtech (K) Limited
77. Standard Rolling Mills Limited
78. Sudi Chemical Industries Limite
79. Tamoil Africa Holdings Limited
80. Tarmal Steel
81. Tarmal Wire Products Limited
82. Tarpo Industries Limited
83. Top Tank
84. Transocean Marine Surveyors (E.A) Limited
85. Umoja Rubber Products Limited
86. Unga Farm Care (Ea) Ltd
87. Unga Group Ltd.
88. Universal Ponds Kenya Limited
89. Wartsila Eastern Africa Ltd
90. Weld - Con Limited
91. Welfast Kenya Ltd
92. Wigglesworth Exporters Ltd
93. Williamson Power
94. Zaverchand Punja Ltd