SUPPLY CHAIN ALIGNMENT AND PERFORMANCE OF LARGE MANUFACTURING FIRMS IN KENYA

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Supply Chain Alignment and Performance of Large Manufacturing Firms in Kenya

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

Signature…….Date……

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This thesis has been submitted for examination with our approval as University supervisors.

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DEDICATION

This thesis is dedicated to my mother Christine Kimwaki, my wife Annah Mutinda, my children Christine Mutinda, Robert Mutinda, Tabitha Mutinda, Nathaniel Kimwaki and the entire family, all my friends and colleagues who have ensured the success of this work.

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ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
CIPS	Chartered Institute of Procurement and Supply
CR	Customer Relations
CRM	Customer Relationship Management
GDP	Gross Domestic Product
GNP	Gross National Product
GoK	Government of Kenya
ICT	Information and Communications Technology
ISC	Integrated Supply Chain
JIT	Just In Time
KAM	Kenya Association of Manufacturers
KMO	Kaiser-Meyer-Olkin Measure
KNBS	Kenya National Bureau of Statistics
KPMG	Klynveld Peat Marwick Goerdeler
OECD	Organization for Economic Cooperation and Development
PPDA	Public Procurement and Disposal Act
PPOA	Public Procurement and Oversight Authority

RoK	Republic of Kenya
SCM	Supply Chain Management
SCP	Supply Chain Performance
SME	Small and Medium-sized Enterprises
SPSS	Statistical Package for Social Sciences
SRM	Supplier Relationship Management
SSCM	Sustainable Supply Chain Management
TCE	Transaction Cost Economics
TQM	Total Quality Management
WB	World Bank

DEFINITION OF TERMS

Inventory visibility This ability of an organization to align its inventory with the demands of the customers and with the capabilities of their suppliers so as to ensure smooth flow of inventory while minimizing costs or maintaining the inventory (Li, Swann & Keskinocak, 2018).

Manufacturing Firms A manufacturing firm is any business that uses components, parts or raw materials to make a finished good. These finished goods can be sold directly to consumers or to other manufacturing firms that use them for making a different product (Ondieki & Oteki, 2015).

Operations and Processes It refers to the management of the flow of goods and services, involves the movement and storage of raw materials, of work-in-process inventory, and of finished goods from point of origin to point of consumption, involves coordinating with all departments to ensure efficient and effective supply chain (Lin, Kuei & Chai, 2013).

Performance of Manufacturing Firms It describes key indicators, methods, and processes that are necessary for measuring success. Performance comprises the actual output or results of an organization as measured against its intended outputs. 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 (Bourguignon, 2015).

Quality Control and Certifications Although commonly referred to as "ISO 9000" certification, the actual standard to which an organization's quality management system can be certified is ISO 9001:2015. Both the accreditation bodies and the certification bodies charge fees for their services (Mellat-Parast, 2013).

Relational Behavior It is the process of enhancing the way the organization relates with other stakeholders in the supply chain network. This is ensured by embracing a culture that enhances behaviour to relate with stakeholders among the employees. In this study, relational behaviour was assessed through stakeholder interactions, responsiveness to customer feedback and logistical; flexibility (Cao, Baker & Hoffman, 2012).

Supplier Relationship Management Is the process that defines how a company interacts with its suppliers. This is a mirror image of customer relationship management. Just as a company needs to develop relationships with its customers, it also needs to foster relationships with its suppliers. The desired outcome is a win-win relationship where both parties benefit (Lee & Whang, 2010).

Supply Chain Alignment It is the process of developing a framework where the operations of a company's supply chain are integrated and aligned in a manner that brings together the key

stakeholders (customers, the employees and suppliers) for effective and efficient supply chain (Melnyk, Stewart & Swink, 2014).

ABSTRACT

Given that modern businesses face continuous changes in both internal and external environmental factors, supply chain management requires intense alignment through integration and collaboration in the value chains. This study seeks to investigate the relationship between supply chain alignment and performance of manufacturing firms in Kenya. This study was guided by the following specific objectives: to establish the relationship between relational behavior, supplier relationship management, inventory visibility and operations and processes and performance of manufacturing firms in Kenya. The study was anchored upon the theoretical foundation of the partnership theory, networks theory, transaction cost theory, SCOR model and the lean theory. The study reviewed both theoretical and empirical literature. Descriptive research design was adopted. The researcher preferred this method because it allows an in-depth study of the subject. The 2017 KAM directory has listing of members (firms) by sectors which contains a register of 12 sectors of those in manufacturing firms spread all over the country. KAM membership comprises of small, medium and large enterprises. The size is measured by their total assets. Large sized firms are the firms with total assets of above Kshs100 Million, medium-sized have between Kshs.40 Million and Kshs100 Million; whereas small firms have assets under Kshs40 Million. This study used the large sized firms only. The population of the large sized registered members as per the directory is 461. This study employed Cochran's formula to sample 160 large manufacturing firms from the total population. A semi-structured questionnaire was administered to collect qualitative and quantitative data. The questionnaire was tested for validity and reliability using 10% of the total sample respondents. Quantitative data was analyzed using both descriptive and inferential statistics and with the help of SPSS version 26 while qualitative data was analyzed descriptively. Multiple regression models was used to show the relationship between the dependent variable and the independent variables. The information was presented using tables, charts, frequencies, percentages and graphs. The finding revealed that supply chain alignment through relational behaviour ($P=0.000$; $\beta = 0.491$), supplier relationship management. Inventory visibility and operations and processes influenced the performance of the manufacturing firms in Kenya. The findings further revealed that quality control determined the extent to which supply chain alignment influenced the performance of the manufacturing firms in Kenya. The study concluded that through adoption of supply chain alignment aspects, the operational costs were reduced as well as the reduction of lead time. Therefore, the study recommended the need for supplier chain managers and other management team in the manufacturing firms to uphold relational behaviour, supplier relationship management, inventory visibility and effective process and control in order to steer their firms' performance.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The study sought to investigate the relationship between supply chain alignment and performance of manufacturing firms in Kenya. This chapter presents the background of the study. The concept of the study in terms of the study variables namely relational behavior, supplier relationship management, inventory visibility, operations and processes, as well as the context of the study that is manufacturing firms in Kenya and their performance is discussed. Furthermore, the statement of the problem, research objectives, hypothesis as well as justification of the study is presented. The chapter finally presents the scope of the study as well as the limitations of the study.

Supply chain alignment is the process of integrating the activities in a supply chain framework to incorporate all the main stakeholders ranging from customers, employees and the suppliers. It is the process of ensuring consistency and fit in strategic goals, metrics and activities between firms interlinked from upstream to downstream and which are involved in customer value creation (Melnyk, Stewart & Swink, 2014). Supply chain alignment involves strategic collaboration and coordination across the supply chain. Flynn, Huo and Zhao (2010) underscore the value of supply chain alignment in managing intra and inter firm relationships in a value chain. The management of a supply chain emphasizes the need to align all the activities that create value for customers and are performed across the supply chain, in order to achieve high levels of customer service in a cost effective way (Skipworth & Julien, 2015).

1.1.1 Supply Chain Alignment

Globally, supply chain alignment has been found to fit among objectives, structures and processes within and between different functions and members in a supply chain, leading to better business performance (Tamas, 2010). Skipworth *et al.* (2015) suggest

that supply chain management is about addressing the imbalances due to these conflicting objectives by managing the trade-offs between supply policies, economics of manufacturing and complexity.

Lee (2014) cites supply chain alignment as one of three strategic business imperatives, alongside agility and adaptability. However, supply chain misalignments, stemming from the lack of proper coordination mechanisms between supply chain partners, create inefficiencies that not only prevent the supply chain from realizing its capabilities, but also critically impede its ability to compete and survive.

Supply chain alignment requires consistency of strategies, objectives and processes among different supply chain members to improve business competitiveness (Skipworth & Julien, 2015). Thompson and Coe (2012) identified that a well aligned supply chain lead to revenue growth, working capital efficiency, operating cost reduction, better perceived customer value, etc. across the whole supply chain.

In the retail industry supply chains in the USA, the inter-organizational systems alignment has witnessed the use of ICT to enhance service level, improve operational efficiency and information quality, and enable agile supply chain operating models (Auramo, Tanskanen & Smaros, 2010). In practice, at Walmart retail, supply chain alignment has had considerable influence on cost, delivery, quality, flexibility, inventory, process improvement, innovation and sales and financial. Among the US firms, supply chain alignment enable companies to integrate their information systems (IS) successfully, and ultimately their operational performance increase (Buhner, 2012).

Therefore, high-level integration, which includes exchange between companies of relevant real-time information about processes, planning and expectations from stake-holders, offers the biggest benefits from supply chain alignment. This notion of usefulness of SC alignment is also consistent with theories behind SCM, because even the definition of the concept SCM includes alignment and integration of the key business processes (Gölgeci & Kuivalainen, 2020), and the theory behind integration states that

increased integration leads to higher performance (Pagell, 2014) due to increased visibility and higher predictability.

In the UK, Poor availability of products and excessive stocks have plagued many companies and created an organizational divide between marketing and supply chain (Godsell, Birtwistle & van Hoek, 2015). Consequently, supply chain management is now seen as a major competitive weapon (Selviaridis & Spring, 2018). A study at BAT in the UK has offered crucial lessons in reconfiguration of supply chains to include supply chain alignment. Dubey *et al.* (2021) observe that business alignment needs to be embraced from the start of the supply chain reconfiguration process.

Regionally, supply chain alignment is on an upward trend due to the following drivers for this model include: expanding companies that require additional resources but cannot afford or are not willing to invest in their acquisition; the pursuit and attraction of new talent; the reduction of operating costs; and carbon footprint reduction. Supply chain alignment has meant that capital investments in this model are minimal. Experts say that Africa, particularly South Africa, is seeing significant growth in supply chain alignment. A decade ago, the general perception was that alignment barely impacted customer service. Now companies realize that they can enjoy the full financial benefits of outsourcing without compromising on quality (Von Maltitz, 2014).

The era of privatization in many public utility sectors in Africa in response to the world bank sponsored SAPs has created lots of challenges in coordinating and collaborating the needs of various players and actors in these sectors (Attia, 2015). Ghana provides a classic example on the inefficiencies in the manufacturing firms supply chain on account of the difficulties surrounding privatization in the country, difficulties which are a function both of the economics of privatization and the failures to adopt strategic supply chain management tools such as strategic supply chain alignment (Buyukozkan, 2014). Indeed, in Ghana, there is an indicative disparity and inconsistency in accounting for commodity demand by the ever increasing population, the infrastructural demand and the regulatory authorities in the various value chains.

In Kenya, private sector supply chains mainly focus on several areas. This differs from sector to sector and also industry sector to sector, but they are standardized and regulated by one body. According to Wanyama (2013), in the last decade there has been a dramatic shift from one dimensional supply chain to integrated network of partners in the supply chains in both private and public sector. Private sector supply chain consists of different parties that are either directly or indirectly interrelated with the aim of satisfying the needs of customers. These reforms have ensured supply chain alignment and consequently fairness and competition among suppliers of goods, works and services, thereby restoring the confidence of investors in the procurement process while at the same time ensuring that the manufacturers gets the best value for its money (Amayi, 2011).

1.1.2 Firm Performance

Many firms globally have integrated supply chain alignment into their operations (Eurostat, 2012). Twenty years ago, alignment was comprised only of those bold early adopters. Few companies dared to venture into this new world during its naissance. Now, alignment, which includes total cost of ownership, is a well-established instrument through which companies can optimize their processes (Burgelman & Doz, 2011). The market, both on the sell and the buy side, has matured.

The manufacturing sector is the third biggest industrial sector after agriculture and transport and communication (KPMG, 2014). It is the third leading sector contributing to GDP in Kenya. Although Kenya is the most industrially developed country in East Africa, the manufacturing sector constitutes merely 10 per cent of the industrial sector contribution to GDP (RoK, 2014). The growth in manufacturing industry has declined to 3.3 per cent in 2011 as compared to 4.4 per cent in the year 2010 mainly due to a challenging operating environment (KNBS, 2012). Furthermore, the manufacturing sector has high yet untapped potential to contribute to employment and GDP growth.

After a long period of virtual stagnation, Kenyan economy went through a strong phase of performance over the period 2003-2007 since the rate of economic growth accelerated up to 7 per cent. During the same period Total Factor Productivity in manufacturing sector increased by as much as 20% (WB, 2013). As an important sector in the overall economic growth, manufacturing sector requires in depth analysis at industry as well as firm level. According to KPMG (2014), real growth in the manufacturing sector averaged 4.1% p.a. during 2006-2013 which is lower than the average annual growth in overall real GDP of 4.6%. As a result, the manufacturing sector's share in output has declined in recent years.

According to the US Department of State, this exposes a gap in the country's ability to achieve a fully industrialized economy by 2020. It argues that there is still a lot of room for expansion in Kenya's manufacturing sector, but for this to happen, reforms to the business environment need to be made to factor in the influence of supply chain alignment in the sector (KPMG, 2014). The manufacturing sector has a great potential on promoting economic growth and competiveness in the country like Kenya.

The increasing level of competition and globalization in the world economy has a major impact on the need for organizations to improve their supply chain performance. Many companies pay millions of dollars in order to improve their supply chain performance through process reengineering, new systems and training their employees (Dubey et al., 2018). A number of studies have been conducted on supply chain alignment globally. For instance, Doyle (2014) conducted a survey on 174 firms in the UK and found out that though 92% claimed supply chain alignment seemed to have reduced transaction costs. In Malaysia, for instance, Rashid and Aslam (2012) conducted a study to assess the impact of supply chain alignment on business performance in Malaysia.

In Nigeria, the study conducted by Gattorna (2016) on supply chain practices identified supply chain alignment and a critical supply chain activity that every organization must engage in. Kakwezi and Nyeko (2010) associated procurement performance with supply chain alignment procurement operations. On the other hand, Gunasekaran, Patel &

Tirtiroglu (2016) pointed out that supply chain alignment is associated with reduced procurement costs and improved achievement of procurement organizational goals respectively.

1.1.3 Large Manufacturing Firms in Kenya

Statistics from World Bank (2022) show that Kenyan manufacturers have registered stagnation and declining profits for the last five years amid the unpredictable operating environment. Further statistics from Kenya Association of Manufacturers have shown that certain firms announced plans to shut down their plants and shift operations to Egypt as a result of reduced profits (KAM, 2019). According to the World Bank (2021), sluggish growth in the manufacturing sector is pulling down economic growth in Kenya and is also losing grip on the East Africa Community market where it was dominant, due to inefficiencies and the unpredictable operating environment. The share of manufactured goods imported by EAC from Kenya declined from 9 per cent in 2009 to 7 per cent in 2013 (KAM, 2014). Kenya was the largest exporter of various manufactured goods to the EAC. Its market share has declined for a range of products including plastics, chemicals and paper (RoK, 2014).The report spelt out the main influence being uncertainties in the operating environment and lack of preparedness by these manufacturing firms to adjust and cope with the dynamic environment (RoK, 2014).

Cadbury Kenya announced that it would close down its manufacturing plant in Nairobi by the end of October 2014 (RoK, 2014a). In the full-year to September 2013 results, Eveready's net profit fell 58.7 per cent to $493,237 from $784,783 the previous year. Its production capacity dropped to 50 million units annually down from a previous high of 180 million per year mainly caused by contingencies (RoK, 2014). Tata Chemicals Magadi scaled down its operations by closing down its main factory (Kandie, 2014). Providing the right degree of supply chain alignment and having an efficient supply chain at the same time is a goal that is hard to achieve and that typically involves trade-off decisions by management, since increased supply chain alignment can be perceived to come at the expense of reduced efficiency, and vice versa (Rappaport, 2013).

The manufacturing sector contributes on average 12% of Kenya's GDP. Its significance to Kenya's economy and growth cannot be overlooked (KIPPRA, 2013). Despite the complexity and length of manufacturing firms' supply chains, continuous improvement (kaizen) and alignment to the overall organizational goals is integral to the sustainability and overall performance of the firm in a competitive environment. However, this desired optimality in alignment and performance is seldom attained (World Bank, 2013). Supply chain alignment is therefore paramount to any organization since it leads to improved product design, quality and cost consciousness, which means an improvement in the performance of a firm.

Statistics from OECD show that large scale manufacturers operating in Kenya registered stagnation and declining profits for the last five years due to a turbulent operating environment as well as non-alignment of their respective supply chains (OECD, 2010). It is estimated that large manufacturing firms have lost 70% of their market share in East Africa largely attributed to non-alignment issues (RoK, 2014). In 2016, manufacturing sector in Kenya contributed barely 6% to the GDP which represented Sh.537 Billion indicating a decline from the previous year 2015 where it had reported a 10% due to disruptions in supply chains, a challenging operating environment and high operational costs (KNBS, 2014). In Kenya, there has been a rise in complaints by the public, professionals and other stakeholder's about the manufacturing firms' performance (Mohiuddin & Su, 2013; Muthoni & Nyakagwa, 2014; Mwirigi & Were, 2014). Several studies have been done, however these studies have used different methodological approaches, while others have focused on varied contexts (Skipworth & Julien, 2015; Kaplan & Norton, 2014; Attia, 2015; Mokadem, 2016).

1.2 Statement of the Problem

The Contribution of the manufacturing sector in Kenya's GDP has staged at an average of 10% over the years, despite the industry's potential to contribute to over 30% of the GDP (KNBS, 2021). In 2016, the sector contributed up to 11% of the GDP, but dropped to 9.2% in 2017, 9.0% in 2018, and 8.9% in 2019, and 7.1% in 2021 (Economic Survey,

2021). The overall value growth of the sector dropped from 2.7% in 2016 to 0.2% in 2017, and 0.1% in 2018 (Economic Survey, 2021). According to the Kenya Association of Manufacturers [KAM] (2022), in 2022, the Kenyan Manufacturing sector dropped over 7,000 jobs, despite benefiting from tax incentives from the government, where most of the firms cited unstable revenues and inability to meet the overhead costs. Additionally, most manufacturing firms have been recording losses while others downsizing their operations to minimize the cost of operation, while others have exited the market altogether (Nduati, 2020; Gachanja, Nga'nga & Kiganane, 2020). Companies like Eveready, Athi River Mining, East African Portland Cement Plc, Mumias Sugar, and East African Cables have fallen from giants to loss-making within a span of less than 10 years, a situation that according to Kitainge, Bor and Wanza (2019)., is worrying mot only to the future of the manufacturing industry in the country but also on the continued growth of the country's economy. While there exists a number of studies on the performance of manufacturing industry in Kenya (Wachira, & Wang'ombe, 2019; Cheptum, 2019), the studies have failed to provide a conclusive elucidation on the waning performance in the sector.

Empirical evidence shows that supply chain alignment is one of the fundamental drivers of effectiveness and efficiency in manufacturing industry, leading to enhanced performance of the sector (Wilujeng, Sarwoko & Nikmah, 2022); Quang & Castro, 2017). van der Westhuizen, and Niemann (2022). while assessing the role of supply chain alignment on the performance one aspect that is attributed to the enhanced organizational performance of the manufacturing firms, revealed that supply chain alignment through supplier relationship management and relational behavior was instrumental in steering organizational performance. Further, Wilujeng, Sarwoko, and Nikmah (2022) and Skipworth et al. (2015) revealed that supply chain alignment was responsible for strengthening the ability of modern organizations to increase productivity, quality of the products and profits. While analyzing the effect of supply chain alignment on performance of organizations in Ethiopia, Ali (2021) revealed that relational behavior, inventory visibility and operations and process had a significant

influence on organizational performance. While these studies have shown diverse inference on the role of supply chain alignment on organizational performance, the studies have overlooked the aspect of quality control and certifications. According to Aslam et al. (2023), quality control and certifications is a critical determinant of how effective supply chain processes are aligned to meet customer needs. The studies also have conceptualized supply chain alignment in varied approaches, while the contexts of these studies are diverse and not on manufacturing sector in Kenya. It is on this background that the study sought to examine the relationship between supply chain alignment and performance of large manufacturing firms in Kenya.

1.3 Study Objectives

1.3.1 General Objective

The main objective of this study was to investigate the relationship between supply chain alignment and performance of large manufacturing firms in Kenya.

1.3.2 Specific Objectives

1. To establish how relational behaviour relates with performance of large manufacturing firms in Kenya.
2. To determine the relationship between supplier relationship management and performance of large manufacturing firms in Kenya.
3. To examine the effect of inventory visibility on performance of large manufacturing firms in Kenya.
4. To assess how operations and processes relates with performance of large manufacturing firms in Kenya.
5. To determine the moderating influence of quality control and certification on the relationship between supply chain alignment and performance of large manufacturing firms in Kenya.

1.4 Research Hypotheses

This research was based on the following null hypotheses which were consequent to a comprehensive study of literature, represented in the next chapter.

1. **H_O:** There is no significant relationship between relational behaviour and performance of large manufacturing firms in Kenya
2. **H_O:** Supplier relationship management has no significant relationship with performance of large manufacturing firms in Kenya
3. **H_O:** Inventory visibility has no significant relationship with performance of large manufacturing firms in Kenya
4. **H_O:** There is no significant relationship between operations and processes on the performance of large manufacturing firms in Kenya
5. **H_O:** Quality control and certification has no significant moderating effect on the relationship between supply chain alignment and performance of large manufacturing firms in Kenya

1.5 Significance of the Study

The study seeks to assess the relationship between supply chain alignment and performance of manufacturing firms in Kenya. While this study may be of value to any person interested in highlighting the opportunities and challenges that may exist in supply chain alignment and its consequent influence on the performance of manufacturing firms, it is hoped that the study findings specifically would benefit the following groups:

1.5.1 Manufacturing Firms

Management of the firms are also expected to use the information and the findings on the relationship between supply chain alignment and firm performance to make better policies and decision for their firms which can guarantee successful growth. Having established the relationship between supply chain alignment and performance, the

management can make use of the findings in order to oversee turnaround of their firms and improve the performance. This is because the environment of operation is becoming more and more dynamic.

1.5.2 Supply Chain Managers

Implementations of effective supply chain alignment strategies can help supply chain managers to avoid cost inefficient supply chain management practices and poor corporate image that results from poor and intermittent consumer services, higher costs, unsustainable competition and penalties due to low levels of compliance to regulations. The study was of great significance to supply chain managers and board of directors.

1.5.3 Government of Kenya

The study would provide relevant information that would help the government and other regulatory bodies to formulate and implement such policies that would facilitate effective supply chain alignment. The findings of this study would also help the policy makers to review and develop policies that would guide manufacturing firms in Kenya.

1.5.4 Researchers and Scholars

The scholarly world will find great source of literary information and discourses that would be informative in various discussions involving supply chain alignment. The study will elucidate on different theoretical issues and statistical findings that would of great value to future research and studies in similar area.

1.6 Scope of the Study

The study's scope is to investigate the relationship between supply chain alignment and performance of manufacturing firms in Kenya. Supply chain alignment is the consistency and fit in strategic goals, metrics and activities between firms interlinked from upstream to downstream and which are involved in customer value creation

(Amayi, 2011). The 2017 KAM directory has listing of members (firms) by sectors which contains a register of 12 sectors of those in manufacturing firms spread all over the country (KAM, 2019). KAM membership comprises of small, medium and large enterprises. The size is measured by their total assets. Large sized firms are the firms with total assets of above Kshs100 Million, medium-sized have between Kshs40 Million and Kshs100 Million by total assets; whereas small firms have assets under Kshs40 Million. This study used the large sized firms only.

The population of the large sized registered members as per the directory is 461. This study used Cochran's formula to sample 160 large manufacturing firms from the total population. The study collected data from heads of procurement in each of the 160 firms because they were believed to have the necessary skills and knowledge in key areas of the study and could therefore give correct information. Four variables was covered in this study, which include; relational behavior, supplier relationship management, inventory visibility and operations and processes.

1.7 Limitations of the Study

The limitations of the study included unavailability of key respondents taking into account that the target respondents are senior executives with busy schedules. This was mitigated by have prior arrangements with the respondents for inclusion of a session to respond to the questionnaire in their schedules. The other challenge was undue delay due to lack of time for those respondents willing to participate but could be pressed of time. In addition some respondents were unwilling to disclose certain information owing to the sensitivity of the data being sought or because the information was deemed highly strategic. This was mitigated by assuring the respondents that the sole use of the data was academic purpose and would not be disclosed to any third parties.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter covers the review of existing literature on supply chain alignment and firm's performance. The chapter starts by looking at the theoretical literature review where the theories that anchor the study were discussed. The chapter further presents conceptual framework, empirical literature review, critique of existing literature and the research gap. The chapter also presented the summary of literature that summarizes the thematic areas covered in the literature review.

2.2 Theoretical Review

A theory is a generalization about a phenomenon, an explanation of how or why something occurs. It is any statement that explains what is measured or described about cause or effect implicitly (Kumar, 2013). Theories describe, explain, predict, or control human phenomena in a variety of contexts. According to Larry (2013) a "theory is an explanation, a systematic account of relationships among phenomena. In effect a theory includes a set of basic assumptions and axioms as the foundation and the body of the theory is composed of logically interrelated empirically verifiable prepositions. In this study, five key theories are discussed. These theories are partnership theory, the networks theory, the transactional cost theory, the supply chain operations reference model and the lean theory.

2.2.1 Partnership Theory

In supply chain, the common model through which theorists study the relationship between supply chain partners is known as the partnership theory. In its basic nature, the partnership model depicts the buyer and supplier as partners with a common interest which is customer satisfaction (Xu, Huo & Sun, 2014). Partnership is a relationship

based on mutual trust, openness, shared risks and rewards that enables an organisation gain competitive advantage leading in the company achieving a performance that's far much greater than the firm would have achieved when operating as single entities. This model requires efficient information exchange between the partners which is a critical element of any partnership (Kumar, 2013).

The theory further states that any partnership is always based on value and present for each other (Wong *et al.*, 2012). The solid and long term relationship simply implies continuous improvement of the organization performance. Suppliers must provide better services that are of high quality than his competition at a price reasonable and still achieve goals to remain in business. Partnership model according to Zhao and Yeung (2011), increases company efficiency through way of cooperative; both parties obtain cost reduction which leads to price reduction and therefore increasing the market share profit margin as well. This leads to a company gaining a competitive edge and efficiency (Wagner & Bode, 2013). .

The character which forms the perceived attributes of partnership include the following; high frequency of both formal and informal communication, cooperative attitude, trusting relations are built, problem solving that is win negotiation style, long term business agreements, open sharing of information and there is always vendor certification and defect prevention approach (Prajogo *et al.,* 2012). Motivation factors, environment of operation, strength of operation and duration of operation vary in different partnership formed. However there is never an ideal relationship that is recommended (Haakansson & Ford, 2012).

There are three types of partnership; which is the most used. Companies recognize each other as partners, all the activities are coordinated, and planned is short term. Only one division within the organization is involved. The second type is partnership which basically integrates activities rather than coordinating as in the case for type 1. There are multiple division and entails a long term horizon. The last type of partnership is the

partnership which is not used frequently. Companies share high operational integration and each views the others as an extension of their firm (Fassoula, 2013).

The partnership theory has three elements which are drivers, facilitators' and used components. The drivers each party must have a driver strong enough to provide them with realistic expectation of significance benefit through strengthening of the relationship (Gianakis, 2012). Facilitators on the other hand have included corporate compatibility, mutuality, managerial philosophy and techniques and symmetry. In conclusion in order to gain leadership position against your competitors and ensure the company grows partnership can be used to achieve the above. This theory is relevant because relational behaviour entails partnering with various players in the supply chain.

2.2.2 The Networks Theory

Network's perspective also known as networks theory is mostly concerned with the value generation through inter-organizational relations (Narasimhan & Nair, 2009). Network perspective focuses on exploring how networks of individuals, groups, or firms relate to organizational outcomes at the same level of analysis (Rogers, 2015). This theory was first introduced during the 1980s by Hakansson and Ford and developed from the focus on relationships between just two entities, or supplier collaborations, towards an approach which entails multiple relationships between different counterparts throughout the supply chain such as early supplier involvement.

The adherents of the network perspective found that firms acted in accordance with the supply chain alignment perspective (Skipworth & Julien, 2015). Especially firms which delivered to other firms, they did not regard customers and suppliers as competitors, but more as collaborators. Otieno (2014) define the network as a specific type of relation linking a defined set of persons, objects or events. The networks can be divided into three concepts; actors, resources and activities.

All form their own networks but are dependent on each other (Theodorakioglou, Gotzamani & Tsiolvas, 2016). The networks have been utilized for both global supply chain management studies as well as supply chain partnerships in specific industries or countries (Cousins, Lawson & Squire, 2013). Chang, Chiang and Pai (2012) further state that the supply chain network is a complicated network model and its specific context depends on the relationships and collaborations among the network members.

Moreover, networks are seen as beneficial for every company embedded through investments and actions of the other counterparts involved in the process (Spekman, Kamauff & Myhr, 2012). This theory supports the variable supplier relationship management by linking early supplier involvement, supplier development and strategic collaborations to essential metrics that can be managed to ensure achievement and effective supply chain alignment.

2.2.3 The Transaction Cost Theory

Coase (1998) introduced the concept of transaction costs economics where he specified that in procurement these costs may include among others; life cycle related costs of inventory, equipment or property. Transaction cost theory tries to explain how companies compete cost-wise and why companies expand or source out activities to the external environment (Bharadwaj & Matsuno, 2012). Transaction cost theory supposes that a company will try to minimize the cost of exchange with the environment and the bureaucratic cost of exchange within the company. This may entail minimizing acquisition related costs (Carr & Smeltzer, 2012).

According to Castano and Mills (2013) transaction cost theory is one of the key motivator of supply chain alignment in any organization. The transaction cost economics focuses on the organization of transactions that occur whenever a good or service is transferred from a provider (seller) to a user (buyer) across separate interface. The theory sees sellers and buyers as different possible forms of organizing and coordinating economic transactions (Wever, Wognum & Omta, 2010).

When external transaction costs are higher than the company's internal costs then the company will grow because the company is able to perform its activities more cheaply than if the activities were performed in the market place (Luzzini, Caniato, Ronchi & Spina, 2012). This means keeping the maintenance and acquisition related costs at a minimum. According to Gonzalez-Benito and Spring (2010) transaction cost arises every time a product or service is being transferred from one stage to another where new sets of capabilities are needed to make the products or services. Here acquisition and salvage costs may arise.

Companies will therefore look at the inventory visibility of the entire process. Based on this theory, Fredikind (2014) argues that supply chain alignment lowers the cost of inventory ownership through looking at the total costs involved. Chae, Yen and Sheu (2015) says that transaction costs relating to procurement are those costs that enterprises incur in trying to acquire inventory and the overall procurement costs involved. This theory supports the variable inventory visibility by linking the acquisition of inventory visibility, visibility of inventory by the customers and visibility of the inventory by the suppliers to the need for efficiency and effectiveness in supply chain process for enhanced firm performance. The theory was therefore used to instigate the third objective of the study which was to assess the relationship between inventory visibility and performance of large manufacturing firms in Kenya.

2.2.4 Supply Chain Operations Reference (SCOR) Model

The SCOR model was released by the by the Supply Chain Council and has been widely and popularly used in processes performance management comprising major processes, metrics and standards characteristics (Rezaei, Akbarpour & Karimi, 2017). It has also been widely used in industry and services, and studied in academia as well. SCOR has numerous applications in literature, industry and services (Sha & Chen, 2012).

In the view of Supply Chain Council, SCOR model brings together the strategic concepts of business process re-engineering, operations and process measurement into a

cross functional framework consisting of; standard description of processes; (Schneiderjans & Cao, 2009) a framework of relationships among the standardised processes; standard scheduling metrics to measure process performance; loading and routing management practices that produce best in class performance; and standard alignment to skill and knowledge issues and functionality (OECD, 2010). The four processes of SCOR model which are defined in increasing level of detail are; source, make, deliver and plan (Storey, Emberson & Harrison, 2012).

SCOR model contains three levels of process details. Level one is the top level, dealing with operations and process types. Level two is the configuration level and deals with operations and process categories. Level three is the operations and process element level and is the lowest level in the scope of the SCOR model (Spekman, Kamauff & Myhr, 2012). This theory supports the variable refined operations and processes by linking the values of scheduling, capacity planning, routing, dispatch and expediting to essential metrics to be managed to ensure achievement and effective performance of supply chain alignment.

2.2.5 The Lean Theory

The term ‘lean Production’ was first used by Womack and Jones to describe the 2:1 difference in productivity they found between car assembly plants in Japan and those in Europe. They subsequently explained how companies could make dramatic improvements in performance by adopting the lean approach to manufacturing pioneered by the Toyota Corporation. Lean is a functional model which basically discounts the value of economies of scale and focuses on how to reduce costs as a result of small, incremental and continuous improvement. Lean management has certainly become increasingly significant in general management (Buttle, 2013).

Initially organizations involved in manufacturing of products used to involve themselves in lean manufacturing techniques and ISO certifications, this has ceased as lean has expanded beyond manufacturing (Carmignani, 2009). Lean manufacturing law seeks to

explain how organization should manage its TQM system and needs. It states that TQM can be used as a strategic differentiator by the organization and further goes on to say that not all continuous improvement is about waste (Casadesus & De-Castro, 2015).

The theory stated that TQM strategies developed by an organization should support the customer's need and expectations (Kannan & Tan, 2010). TQM strategies and Six Sigma should not be a driver on how much and when a product was delivered to a customer, rather, the customers' expectations should be understood and management strategies is designed purposely to meet those expectation. This therefore implies that cost associated with management cannot be achieved through inconsistent management network designs (Karapetrovic & Willborn, 2012). This theory is relevant to the study because continuous improvement is a key component in effective and efficient performance among the manufacturing firms.

2.3 Conceptual Framework

Kothari (2014) defines conceptual framework as a group of concepts that are broadly defined and systematically organized to provide a focus, a rationale and a tool for the integration and interpretation of information. It is considered as a visual or written product, one that "explains either graphically or in narrative form the main things to be studied, the key factors, concepts or variables and the presumed relationships among them". Conceptual framework can also be described as a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation (Orodho, 2014).

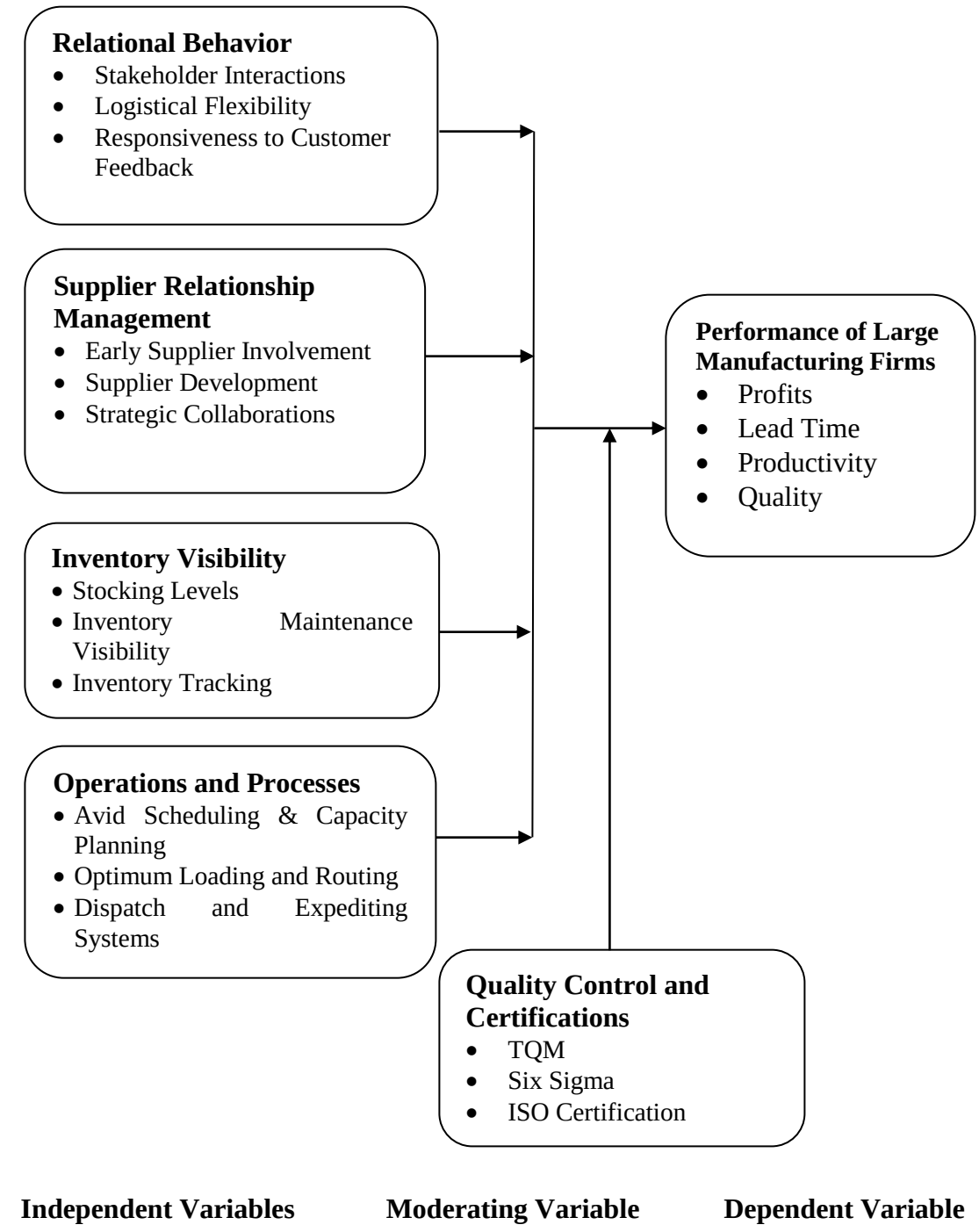

Figure 2.1: Conceptual Framework

2.3.1 Relational Behavior

Relational behavior refers to activities and manner in which these activities are performed within an organization to facilitate the process of building up and maintaining customer relationships and interactions among stakeholders. It is aligned to intra-organizational connectedness, which is the degree of formal and informal relationships among employees across departments. It also encompasses extra-organizational connectedness, which is the degree of formal and informal direct relationships between the organization and the stakeholders (Skipworth *et al.,* 2015). Relational behavior is characterized by stakeholder interactions, logistical flexibility, and responsiveness to customer feedback. These are the aspects that were used to measure relational behaviour in this study.

Stakeholder interactions refer to the extent to which the organization formally and informally shares information with the stakeholder (Fassoula, 2013). Having stakeholder interactions implies that the organization is ready to bring its stakeholders closer and share the necessary relationship that enables them to get along together (Yasin, Bayes, & Czuchry 2015). To encourage stakeholder interactions, it is essential for the organization to streamline how its internal systems are aligned towards responding to stakeholders' needs and coming up with a framework for continued interactions and information sharing with the stakeholders. Stakeholder interactions require activities that often improve mutual understanding between the organization and the stakeholders. The existence of different goals within an organization inhibits internal collaboration (Sabath & Whipple, 2014). Alignment of relational behavior through stakeholder interactions is essential to achieve mutually accepted outcomes (Pagell, 2014; O'Leary-Kelly & Flores, 2012).

The importance of stakeholder interactions (Ye & Wang, 2013; Sabath & Whipple, 2014) responsiveness to customer feedback (Anderson & Narus, 2010) and logistical flexibility (Fassoula, 2013) across functional departments has been highlighted by many studies. Relational behavior refers to stakeholder interactions, which facilitate the

process of building up and maintaining customer and stakeholder relationships. Relational behavior is grounded in the boundary spanning literature. Boundary spanning capability is claimed to allow organizations' processes to focus on providing superior value to external or internal customers (Tracey, Lim & Vonderembse, 2015).

Boundary spanning activities such as market sensing, customer linking and channel bonding are essential to enhance relationships with customers. Focal firms that emphasize boundary spanning will assign roles such as liaison, task force, standing committee and integrating managers (Danese & Romano, 2014; Wong *et al.*, 2012). Despite its importance, existing supply chain literature fails to define the characteristics of relational behavior.

Since a conflicting objective is often the main obstacle to customer responsiveness, this study suggests stakeholder interactions, logistical flexibility and responsiveness to customer feedback as crucial indicators for relational behavior in supply chains. The lack of shared goals with suppliers is one of the inhibitors of collaboration in planning, forecasting and replenishment (Barratt & Oliveira, 2011). Very often any transaction or joint effort in improving a supply chain will incur costs and these costs are often unevenly distributed. Supply chain members that choose to push additional costs to other members often inhibit alignment efforts (Chung & Leung, 2012).

It is also possible to devise profit sharing contracts to share rewards (Simatupang & Sridharan, 2014) and further encourage long-term collaboration. Even though the benefits of cost-sharing and profit-sharing contracts have been confirmed by numerous mathematical models in the academic literature (Simatupang & Sridharan, 2014), they are still very hard to achieve in practice, due to the asymmetric information and interests among suppliers and customers (Cachon & Lariviere, 2015).

The sharing of goals, cost and profits is only part of relational behavior. At an operational level, focal firms need to jointly solve problems and plan with the stakeholders and customers to improve delivery performance (Auramo *et al.*, 2010).

Sanders and Premus (2015) suggested that closer collaboration with stakeholders increases supply chain integration and performance. Brockhaus *et al.* (2016) describe the use of a "stakeholder association" for joint problem-solving. The association extends from the focal purchasing organization, and jointly determined supply chain improvements can be shared between the focal customer organization and the group of stakeholders (Rogers, 2015; Barratt & Oliveira, 2011). The cooperation between supply chain members in logistical flexibility allows decision synchronization (Simatupang & Sridharan, 2014) and collaborative value analysis (Hartley, 2010) hence ensuring alignment.

2.3.2 Supplier Relationship Management

Effective supplier relationship management can make the procurement process more cost and time efficient hence ensuring alignment of the supply chain (Zimon, Tyan, & Sroufe, 2020). Having supply market intelligence and applying a correct competition situation are ways to implement a good supplier management strategy. Other issues that should be accounted are a reliable source for supplier performance and evaluation as well as developing the suppliers (Barratt & Oliveira, 2011).

With the help of common procurement approaches and development projects the supplier relationship is utilized to the maximum (Whan & Teawon, 2015). Supplier relationship management succeeds the best when all the different factors have been taken into account. It is important to consider issues like delivery, packaging, logistics, time management, documentation and reporting and communication (Fassoula, 2013).

In most cases the problems with suppliers are due to the fact that the contract lacks of detailed information about daily supplier management (Hartley, 2010). Selecting a contact person for the buying and selling organization is essential to ensure the information flow between the organizations (Gordon, Zemansky & Sekwat, 2010). According Burt, Dobler and Starling (2013), actively developing the supplier relations is

important. Understanding your suppliers and utilizing your suppliers mutual competition has proven to be a very effective way of supplier relationship development.

Other development ideas include managing your suppliers to improve their performance and abilities (Ireland, Hitt, & Vaidyanath, 2012). It's important to keep the managing role to yourself when conducting shared product development projects. The buying organization should communicate information with determination to selected suppliers (Callendar & Mathews, 2010). This is in other words known as early supplier involvement.

Understanding the actions and processes of your suppliers is a basis for starting to develop your relationships with them (Sheel, & Nath, 2019). Supply market intelligence is one the factors that need to be accounted. It explains the mutual competition between competing organizations in the market. With the help of detailed supply market understanding, the factors that affect competitive advantage can be identified (Whan & Teawon, 2015). The determination of the knowhow of supplier processes and the total cost structure helps to develop supplier relationships.

The benefit of the long-term relationships with the supplier in this case is the fact that the supplier will learn about the real needs and requirements of the buyer through strategic collaborations (El Mokadem, 2016). This can result is optimization and rationalization of its own operations. The evaluation and measurement of these sorts of activities is hard which makes it a gain for the supplier since it can hide from the buyer and use it as an advantage for its own good (Gabbard, 2014).

2.3.3 Inventory Visibility

Inventory visibility is the process of tracking down the inventory to ensure that the available inventory is known and accounted for, and that the company is aware of the amount to inventory required to meet customers' orders (Gattorna, 2017). Through inventory visibility, companies are able to trace their inventory and manage the

inventory for efficiency and enhanced customer satisfaction (Tenorio, Pascucci, Verkerk, Dekker, & van Boekel, 2021). According to Bolton and Dwyer (2017), through embrace of inventory visibility, it is easier to understand the best approach to avail the required inventory on time as well as ensuring the customers are satisfied through reduced waiting times. As an aspect of supply chain alignment, inventory visibility serves to ensure that as the company is aligning its supply chain process with the key stakeholders (customers, suppliers and employees), it is capable of ensuring the available inventory is known and properly tracked. This ensures that the customers do not have to wait long before their orders are fulfilled, while ensuring that the employees are working smoothly to manage inventory without having to be inconvenienced by delays or late arrivals. Inventory visibility also contributes to supply chain alignment by ensuring that the suppliers are notified on time on when to restock and deliver orders, thus making their work easier and streamlining the relationship due to reduced unfulfilled orders (Sangari & Abbasi, 2017).

Inventory visibility is assessed using several aspects, among them the acquisition or restocking visibility. This is whereby the organization ensures that the available inventory is tracked to establish when the new inventory is required and when restocking should be done (Iranmanesh et al., 2023). This is informed by the current flow of inventory and the emerging customer orders (Chhetri, Hashemi, Lau, & Lim, 2022). When the inventory is visible, it implies that the organization is aware on when to restock and can engage the suppliers early enough to avoid any delays. Through acquisition visibility, the supplier can also identify the levels at which they are required to supply more materials, thus they can prepare early enough. Acquisition visibility as expounded by Gligor et al. (2020) ensures that not only the organization is able to track the levels which it has to track, but also the supply, who is able to smoothly identify when they are supposed to supply more inventory.

The other aspect of inventory visibility is maintenance visibility. This is the type of visibility where the organization through inventory management team is able to track the movement of inventory so as to ensure the maintenance costs of the inventory is low

(Sheel & Nath, 2019). Through inventory maintenance visibility, the organization is able to establish which inventory to release first and which to release first. The customers also use inventory maintenance visibility to understand how they can best place their orders and the pricing for such inventory. According to Mahapatra, William, and Padhy (2019), inventory maintenance visibility helps to determining what is likely to be incurred while maintaining certain inventory so as to establish what to keep and what to leaves. Additionally, the customers are able to have better knowledge on cost of goods based on costs incurred in maintaining the inventory.

2.3.4 Operations and Processes

Supply chain alignment is increasingly being recognized as the integration of key business processes, avid scheduling and routing across the supply chain (Storey *et al.*, 2015). For example, Chi, Huang, and George (2020) argue that now that companies have implemented processes within the firm, they need to integrate them between functions: Streamlining the organization's operations and processes is the next great frontier for reducing costs, enhancing quality, and speeding operations (Vonderembse & Dismukes, 2015). Supply chain alignment seeks to have a more organized supply chain process, where the activities and operations of supply chain are well-articulated and carried out in a sequence manner. Operations and processes, therefore, play an integral role in determining how effective the supply chain process would be in enhancing the organizational performance (Salam & Bajaba, 2022). In this study, operations and processes were assessed through the avid scheduling and capacity planning, optimum loading and routing, as well as dispatch and expediting systems.

Avid Scheduling and capacity building determine the ability of the team in the supply chain section of an organization to ensure the supply chain processes are appropriately aligned to the goals and objectives of the firm. According to Feizabadi *et al.* (2019) the focus on the importance of avid scheduling and capacity planning alignment to supply chain was crucial. The piece that seems to be missing from the literature is a comprehensive definition of the processes that constitute supply chain alignment (Kim *et*

al., 2011). How can organizations achieve supply chain alignment if there is not a common understanding of the key business processes and operations such as optimum loading and routing. It seems that in order to build links between supply chain members it is necessary for organizations to implement a standard set of supply chain processes (Carrillat, Jaramillo & Locander, 2014).

George, Freeling and Court (2010) argue that while management of all organizations in each supply chain should consider these the core operations and processes, the relative importance of each process and the specific activities included may vary. The sub-processes and activities described are designed from the perspective of an organization sitting near the middle of the supply chain. Each process and operation is described at strategic and operational levels (Council, 2012).

Building the appropriate capacity as well as ensuring proper systems to expedite the operations of the supply chain section is integral in steering effectiveness in the supply chain processes (Narayanan, & Ishfaq, 2022). This consists of the establishment and strategic management of scheduling and capacity and provides a blueprint for implementation. This is a necessary first step in integrating the organization with other members of the supply chain. The operational portion is the actualization of the process once it has been established through activities such as loading, routing and consequently dispatching (Storey, Emberson, & Reade, 2015).

2.3.5 Quality Control and Certifications

The management of a supply chain emphasizes the need to align all the activities that create value for customers and are performed across the supply chain, in order to achieve high levels of customer service in a cost effective way (Skipworth *et al.,* 2015). Supply chain alignment requires consistency of strategies, objectives, processes and adherence to six sigma variables among different supply chain members to improve business competitiveness (Mokadem, 2016).

Wong *et al*. (2012) observed that a well aligned supply chain lead to revenue growth, working capital efficiency, operating cost reduction, better perceived customer value, etc. across the whole supply chain. Including six sigma variables such as defining your objectives, measuring them, analysing them, continuously improving them and finally control their implementation, greatly aligns an organization's supply chain.

However, supply chain alignment has been constrained or boosted by many factors, including the role of quality models in improving both intra and inter-organizational alignment from a variety of perspectives that includes, but not limited to, total quality management philosophy, International Standardization Organization 9000 certification, European Foundation Quality Model (Casadesus & De-Castro, 2015; Dellana & Kros, 2014).

Studies explored the role of quality models in supply chains. Robinson and Malhotra (2015) referred to the importance of extrapolating the widely recognized quality programs such as the TQM, the Malcolm Baldrige national quality award and ISO 9001 (international quality management system standard) to supply chains in order to better manage supply chain relationships.

In that sense, some previous studies affirmed that a firm's quality management approaches and supply chain management practices complement each other and their integration facilitate reaching superior business performance (Kannan & Tan, 2010; Kaynak & Hartley, 2014; Mellat-Parast, 2013). Theodorakioglou, Gotzamani and Tsiolvas (2016) identified that one would expect that a firm which implements quality practices will have better opportunity to effectively manage their supply chain relations. Similarly, Casadesus and De-Castro (2015) identified that implementing TQM in its widest and most correct sense improves supply chain management.

2.3.6 Performance of Manufacturing Firms

The attributes of performance which was taken into consideration in this study are: profitability, customer satisfaction, and sales revenue. Supply chain is a key function of any organization, public or private and in this era of globalization with the advent of entrepreneurial organizations; management of purchasing and supply in private sector has gained more prominence (Baier, Hartman & Moser, 2012). Effective management of the function prevents the possibility of poor performance and when attributed to non-adherence to proper procurement processes and procedures; is an indicator of poor management of the supply chain function (Beth, Burt & Capacino, 2013).

Supply chain encompasses the whole process of acquiring property and/or services. It begins when an agency has identified a need and decided on its procurement requirement. Supply chain continues through the process of risk assessment, seeking and evaluating alternative solutions, contract award, delivery of and payment for property or services and where relevant, the ongoing management of a contract and consideration of options related to the contract (Buhner, 2012). Therefore, effective management of the supply chain function is a precursor to the performance of the system in achieving its intended objectives and that of the organization as a whole.

Performance standards when adopted can provide the decision-makers in the supply chain department with unbiased and objective information regarding the performance of the supply chain function. The evaluation or measurement of supply chain performance has always been a vexing problem for procurement professionals (Chopra & Meindl, 2013). He asserts that traditionally, firms concentrate on analyzing their own internal trends which does not portray the true picture on how they compare well with competitors. Such an approach ignores what the competitors are doing (Christopher & Ryals, 2014).

A firm does not wish to make known to its competitors how or what it is doing for obvious competitive reasons. This has been the case in the public sector where procuring

entities have not been making available their procurement data due to the sensitive nature of the data. Christiaanse (2015) underscores these facts and concludes that one of the major setbacks in public supply chain is poor procurement planning and management of the supply chain process which include needs that are not well identified and estimated, unrealistic budgets and inadequacy of skills of supply chain staff responsible for supply chain (Christopher, Lowson & Peck, 2014).

2.4 Empirical Review

This section discusses past studies according to the objectives of the study. The section reviews literature on the influence of supply chain alignment on performance of manufacturing firms in Kenya. According to Kothari (2014), the review of similar studies is used along with empirical data collected. The review of empirical literature plays a key role in establishing research gaps upon which a study can aim to build on (Cooper, Lambert, & Pagh, 2014).

2.4.1 Relational Behavior

In practice, management studies have rarely considered concurrently the various supply chain alignments such as shareholder and customer alignment. For example, the value chain theory of Porter focuses on the building blocks by which a firm creates a product, which is valuable to the customers, assuming that there is no need to trade-off with shareholder value. However, in the mid-2000s some studies have started to examine the links between shareholder and customer value (Bourguignon, 2015).

The tension between delivering customer and shareholder value is a problem all profit-driven organizations have to manage. Still, there is debate in the literature over whether shareholders, or customers, should take priority (Rappaport, 2013). The reality is that the ultimate goal of any company is to make a sustained return for their shareholders. Some argue that organizations are in business primarily to maximize shareholder value and can do so by also delivering customer value, thereby maintaining competitiveness. Some

scholars have argued that customer value come first because a business is more likely to achieve its goals when it organizes itself to meet the current and potential needs of customers (Doyle, 2014).

This view is supported by the efficiency versus effectiveness debate as captured by Ireland, Hitt, and Vaidyanath (2012), thus even the most efficient business cannot survive, let alone succeed, if it is efficient in doing the wrong things, that is, if it lacks effectiveness. Similarly, Jeong and Hong (2012) concludes that it is necessary that everyone knows what to do; than for everyone to do their best.

An alternative to the trade-off perspective is that organizations need to be able to achieve a balance between the two alignment processes (Juttner, Christopher & Godsell, 2010) so that it is possible to deliver effectiveness through customer alignment and efficiency through other forms of alignment. Ultimately, the development of a congruent business strategy to deliver shareholder value, whereby product, marketing and supply chain functions work together, is the state of alignment that leads to superior performance (Feizabadi *et al.*, 2021).

In addition, we argue that supply chain between different stake-holder is meant to inform and complement each other. Such a novel theoretical lens to supply chain alignment is interesting because it considers the alignment, or fit, between shareholder and CA, as a reason for achieving sustainable business performance. Ogulin (2014) emphasize the importance of connecting customer value with business targets, and Cao *et al.* (2012) find evidence that strategic alignment (where functional strategies are aligned with business strategies) may not lead to improved firm performance if those strategies are not appropriate for the competitive environment.

Thus, customer alignment can inform the process of supplier alignment and therefore allow shareholders to better align their objectives with a congruent business strategy. Frohlich (2012) argues that the lack of alignment between business models and practices and response to customer needs will have an adverse effect on shareholder value. In a

way, supply chain alignment or doing the right things ensures customer loyalty and thus promises continuous revenue, thus contributing to shareholder value.

Shareholder value promises continuous investment which supports the implementation of the business unit and supply chain strategies to meet customer need (Slater & Narver, 2014; Kaplan & Norton, 2014), thus suggesting the joint effects of Customer and supplier alignment for enhancing both shareholder and customer value, therefore leading to superior business performance. From this perspective, SA and CA reinforce each other, meaning that supply chain alignment positively affects customer value and eventually business performance.

2.4.2 Supplier Relationship Management

According to Theodorakioglou, Gotzamani, and Tsiolvas (2016), supplier relationship management is the process that defines how a company interacts with its suppliers. As the name suggests, this is a mirror image of customer relationship management (CRM). Just as a company needs to develop relationships with its customers, it also needs to foster relationships with its suppliers (Lee, Yeung & Cheng, 2009). The desired outcome is a win-win relationship where both parties benefit. CRM is understood as the sourcing policy-based design of strategic and operational procurement processes as well as the configuration of the supplier management (Huge-Brodin, Sweeney & Evangelista, 2020).

Integration of internal processes of the organization with the suppliers and customers forms the essence of the whole idea behind supply chain alignment (Wagner & Bode, 2013). With the widespread use of internet, web-based systems enable organizations to form strong customer and supplier integration for inventory management, demand forecasting, customer and supplier relationship management (Callendar & Mathews, 2010). Strategic suppliers/vendors are defined as those that provide high value, high complexity goods or services. The nature of managing successful strategic supplier

relationships requires both client and supplier staff to collaborate on developing ideas that will ultimately grow into innovation and proactivity.

According to dos Santos, de Miranda Mota, and Alencar (2021), the descriptions of relationships are relatively abstract and vary with the discipline from which they are being researched (strategy, economics or psychology). As soon as two or more parties (organizations) associate themselves in order to fulfill a mutual business purpose a relationship is established. Such an association leads to various joint activities, which are dependent on the specific business objective. Buyer supplier relationships are classified as adversarial arm's length approach and partnerships approach (Vachon, Halley & Beaulieu, 2009). The difference between, traditional arm's-length relationships and partner- ships is clear partnerships are closer than other types of relationship. Relationships are seen as having positive links to performance but little is known about the nature of this performance (Carr & Smeltzer, 2012).

According to Norrman and Naslund (2019), for more than a decade, there has been a large and growing interest, among academics and practitioners alike, in the value of effective supply chain alignment practices. The literature suggests that a move towards to a close relationship between suppliers and customers is mutually beneficial for both parties. This notion has been widely accepted among original equipment manufacturers (OEMs) in the U.S.

As a result, the leading OEMs have reduced their supplier base in recent years and reportedly developed closer relationships with a selected few in the form of strategic alliances or partnership (Lee, Yeung & Cheng, 2009). Buyer supplier relationships are commonly evaluated as supply base reduction, communication and long-term relationship. Performance on the other hand is how efficient and effective supplier relationship management solution help in achieving organizational objectives (Rogers, 2015).

2.4.3 Inventory Visibility

Inventory visibility is an inventory management practice has been found, by several studies, to have a favorable effect on firm's performance. This is supported by a study by Gattorna (2016) which shows that firms which outshine their counterparts execute a large standard of inventory visibility than those who did not apply it. As so, reduction of waste through some practices implemented such as preventive maintenance programs, setup time reduction and uniform workloads. From the findings, firms were steadily more profitable than the competitors due to the application of the inventory visibility. In lean production practice, inventory is considered to be a type of waste which should be reduced is seen to be equivalent to quality inventory management.

Durach *et al*. (2019) analysed the role of inventory visibility in supply chain and its role in firm performance. The findings revealed that inventory visibility was essential in enhancing firm performance. They however contended that overall firm's performance should not be quantified with the inventory performance of the firm. Therefore the study examined the assimilation of the return on assets (ROA) as a performances measurement and a firm's annual percentage change in inventory turnover as an inventory management measurement. In the study Durach *et al*., (2019) showed that a bad impact on ROA was experienced due to an improvement on turnover taking into account the effects of time. An interpretation of the evidence showed that some turnover improvement associated with increased ROA while other turnover improvement associated with decreased ROA, which varied transversely from one firm to another pertaining to the firms performance and turnover improvement.

According to Carr and Ittner (2012) in their study, they used a questionnaire to enumerate the major cost factors that affect the total cost of ownership (TCO) of the companies surveyed. This questionnaire was sent to members of the Institute for Supply Management. In summary, their study reported that the criteria for the selection of suppliers who are total cost of ownership compliant are divided into thirteen categories: operating costs, quality, customer-related costs, logistics, technological advantages,

starting price, opportunity cost, capacity and reliability, maintenance, inventory costs, transaction costs, lifecycle costs, and others.

In another study by Ellram (2013) about 62% of firms he surveyed, it was reported that the TCO is used in less than 40% of the purchases. These results are consistent with the work of Hines (2015) which states that the methodology is not widely publicized because its application is difficult. On the other hand, the results indicated that the main application of TCO (28.8% of cases) is related to the purchase of capital goods, i.e. investments and equipment purchases.

According to Foster and Feitzinger (2011), it is particularly important to highlight that the TCO is particularly relevant to support decision making in terms of purchasing materials and components for the production of a large quantity of products. Understanding and trading-off the various costs related to sourcing decisions is all the more relevant given the increased emphasis firms operating in business markets are placing on value-based market offerings, both from the supplier and the customer point of view.

Dumond and Siferd (2010) opine that TCO facilitates companies in dealing with pressure in their own customer markets and making the purchasing function more value oriented. TCO also can be viewed as extending ABC to a boundary-spanning context, where the firm is reliant on cooperation and information provided by suppliers, or inferences drawn from alternative prices quoted by suppliers for changes in their market offerings (e.g., changes in materials in the core offerings, changes in supplementary services, programs, and systems).

Cliff and Siferd (2013) conclude that for accounting to support sourcing decisions, the "value chain perspective of strategic cost management with its focus on 'cost of ownership' rather than supplier price is essential." Milligan (2012) discusses that accounting information is one of the inter-organizational design instruments that must be considered to stimulate cooperation between firms in the supply chain.

A recent U.S. survey among purchasing professionals found that “their organizations are largely in the dark when it comes to making total cost calculations” (Swenson, 2014). Ellram (2013) identified some factors that act as barriers to the adoption of TCO, such as user resistance and complexity of cost data. The intent of TCO analyses is to improve mutual profitability for the supplier and customer by modifying how they do business together (such as, which firm undertakes certain activities, or what the effects are of using certain materials).

Apeji and Sunmola (2022) studied the impact of inventory visibility on the effectiveness of supply chain processes and firm performance. They established that inventory visibility was one of the essential aspects of supply chain visibility that determined firm performance. According to Apeji and Sunmola (2022), identifying the processes most impacted by visibility is a critical step for companies. This helps companies prioritize which information flows to share (Titze & Barger, 2015). The role of improved visibility in processes within procurement, manufacturing, planning, inventory management and transportation has been studied extensively in literature. Yet, as mentioned earlier, the purpose of this work is not to establish an exhaustive list of processes positively affected by inventory visibility and quantify the impact. Rather, it is to examine how some of the processes that are important for the company and organizational structure are improved once the inventory visibility is implemented.

2.4.4 Operations and Processes

Akkermans et al. (2009) provided that at the operational level, the capacity planning process is responsible for responding to both internal and external events. The first step is to recognize the capacity of the organization. This might seem trivial but the goal of being proactive makes this a challenging part of administering the operation. The operational department needs to have a thorough understanding of the firm’s supply chain operations, and try to foresee the effects of a given event on the customer and on the internal operations of the firm.

Buhner (2012) argued that processes that require supply chain alignment might originate in any one of the other processes so scheduling is essential. Once the strategic process is recognized, the organization evaluates alternatives for managing the strategic process with the least disruption to the customer and internal operations. The organization determines a set of alternative actions working jointly with the specialists in each of the functions affected by the event or that can contribute to implementing the solution. This requires interfacing and aligning with other processes that are affected by the alternative responses so as to attain better performance.

Indeed according to Carmignani (2009) the implementation of the selected routing is coordination intensive, as other business process owners or function managers often need to participate in the implementation. At this point, the actual response to the operation is executed. Finally, the dispatch and expediting process includes monitoring and reporting the process performance. This sub-process includes recording the process in a database that can be used for future reference, and monitoring the evolution of the process in order to know to what extent the response has been implemented.

Gianakis (2012) observed that performance of the operations and processes is measured and conveyed to the customer relationship management and supplier relationship management teams. Another important component of the supply chain alignment process is developing contingency plans in the event of either internal or external operations and processes that disrupt the balance of supply and demand. The organization develops guidelines or rules to deal with unexpected demand or interruptions to supply (Buhner, 2012).

Galbraith (2012) opined that the supply chain operations and processes guidelines should be developed in accordance with the expectations of the customers outlined in the customer relationship management process, and with input from manufacturing flow and supplier relationship management. The supply chain determines the guidelines and communicates them to the customer service management team, since they address the concerns of customers when these supply chain operations and processes occur. Finally,

as with the other processes, the organization develops the framework of metrics to be used to measure and monitor the performance of the processes. Typical process measures might include forecast error and capacity utilization (Boiral & Roy, 2010).

2.4.5 Quality Control and Certifications

Casadesus and De-Castro (2015) affirmed that TQM and other quality practices plays a considerable role in better managing and aligning supply chain relations. Theodorakioglou *et al.* (2016) examined how the EFQM model facilitates intra-firm coordination and concluded that quality practices results in better intra-organizational alignment. Yang *et al.* (2013) developed and applied a six sigma methodology in a leading manufacturing organization to improve supply chain operations. They concluded that such methodology could play a considerable role for successful supply chain thinking. Similarly, Mehrjerdi (2013) confirmed the role of implementing six sigma tools in improving coordination efforts in supply chains.

In 1987, the International Standardization Organization (ISO), originally interested in the regulation of measurement activities in the different industrial sectors, published the first edition of the ISO 9000 series. In few years later, the ISO 9000 standards became an important leading reference for quality systems all over the world (Franceschini *et al.*, 2009). Today, the ISO 9000 standards has become a prerequisite for all firms operating in industrial sectors with around one million implementers all over the world from different industrial sectors (Jang & Lin, 2014). The ISO 9000 standard series is considered a general application to develop a quality management system that aims to improve product quality through adequate management of organization resources and processes (Boiral & Roy, 2010).

It is widely accepted that the ultimate aim of implementing ISO standards is to satisfy the demand of external customers as well as potential customers (Douglas, Coleman & Oddy, 2013). Bagchi *et al.* (2013) referred to a study conducted in the USA and the UK in 2004, 2005, 2006 that concluded that the internal benefits of earlier versions of ISO

9000 takes precedence over external benefits. However, Robinson and Malhotra (2015) argued that quality practices must expand from traditional intra-firm mind sets to include inter-organizational supply chain activities. In that sense, Boiral and Roy (2010) assumed that ISO 9000 leads to better intra-organizational processes and in turn will provide organizations with better ability to respond to customers and competitors pressures. Several studies referred to the importance of the dual focus on internal (intra-organization) and external (inter-organization) quality performance as a key strategy for achieving competitive differentiation (Mellat-Parast, 2013).

In that sense, Carmignani (2009) highlighted the importance and the potentiality of quality models to support the supply chain integration efforts. Casadesus and DeCastro (2015) analysed the impact of ISO 9000 quality assurance implementation on adherence to strategies in favour of a SCM philosophy through examining whether ISO 9000 implementers improves relationship with suppliers. The results provided doubtable affirmation on how ISO 9000 implementation favours SCM strategies. Yet, they concluded that quality management practices provide a great deal of help and support for relationships in the supply chain.

Carmignani (2009) highlighted that the ISO 9000 is more concerned with quality aspects within a single company and lacks a systemic approach to the supply chain. Thus, he proposed a modified interpretation of ISO 9000 standard to extend and apply the ISO 9000 concepts to a whole supply chain. The aim is to make supply chain partners implement ISO 9000 to align all the supply chain links. However, he identified the need to validate the proposed model through real applications.

2.5 Critique of the Existing Literature

As interest in supply chain alignment has grown over the past decade, questions have been explored and concerns aired among supply chain management professionals, logistics organizations, union and government representatives, and others at enterprise level. Though supply chain alignment have been the topic of much discussion and

debate empirical research studies on the efficacy of supply chain alignment practices and alternative systems have been few; there is lack of systematic reviews on their effects on organizational alignment and associated socioeconomic and business-related outcomes (Kaplan & Norton, 2014).

Ogulin (2014) reveal that relational behavior as an aspect of supply chain alignment enhances organizational performance while Bourguignon (2015) indicate that relational behavior has a weak connection with performance of organizations. The two studies show inconsistent results, and therefore the need for harmonizing the existing literature by having a recent study to assess how relational behaviour as an aspect of supply chain alignment influence performance. According to Fawcett and Magnan (2012), good supply chain alignment improves organizational performance, while on the other hand, the authors indicates that there are aspects of supply chain alignment that have higher influence on performance than others, but fails to clarify such aspects. This raises the need for a study to distinguish and assess the role of supply chain alignment based on the specific aspects of supply chain alignment.

While focusing on relational behaviour Yasin *et al.* (2015) addressed the role of relational behaviour as an aspect of supply chain alignment in terms of practices and behaviours that shape how the company relates with stakeholders particularly the employees, and customers. The study upheld that relational behaviour strengthened performance by making the employees more committed to the supply chain processes, but left out the role played by suppliers and the customers, despite indicating that relational behaviour should be about integrating these three main stakeholders. This also compares with Huge-Brodin *et al.* (2020) who considered supplier relational management to only encompass on the ability of the organization to engage the suppliers early, despite admitting supplier relationship management comprised of a wide scope including of the employees, the suppliers themselves and organizational management. This means that the studies have not exhaustively addressed the need for supply chain alignment through supplier relationship management and relational behavior on organizational performance.

In many supply chains, relationship behaviour and practices are used to facilitate adherence supply chain alignment practices, especially coordination (Feizabadi *et al.*, 2021). The authors indicated that compliance with customer value, reduce or eliminate risks of exposure to competitive risks in supply chains. However, the emphasis has not be drawn by these studies on how the supply chain alignment can be integrated to enhance compliance, despite the emphasis on compliance to minimize penalties issued as a result of non-compliance to customer demand or general stakeholder demand are associated with increased risk in financial terms.

Norrman and Naslund (2019) addressed the essence of supply chain alignment on organizational performance. Their study, however, fails to categorize supply chain alignment, and generally defines it as a way of bringing the suppliers on board. This however leaves out other key players in the alignment including the employees and the customers. On the other hand, Carrillat et al. (2014) focuses on supply chain in the construction industry value chains focusing the influence of supplier relationship management and supply chain alignment, with results showing that it's key to enhancing coordination and common supply chain configuration. The construction supply chain alignment literature has paid little attention to misalignments and their influence and effective ways to manage errors in the supply chains (Godsell *et al.*, 2010).

Gattorna (2016) analysed inventory visibility based on supply chain visibility, but leaves out the aspect of customers despite being the target recipients for the inventory. On the other hand, Gianakis (2012) addresses operations and processes based on the internal consistencies of the firm but fail to link this with the key stakeholders as an aspect of supply chain alignment. Casadesus and DeCastro (2015) also introduced the aspect of quality control and certifications but only consider this as a predictor to performance as opposed to moderating effect. As well put by Kaplan *et al.*, (2014), just telling supply chain practitioners 'these areas require prioritization of alignment programmes and not telling them how to handle them is not enough.

2.6 Summary of Literature Reviewed

The intense globalisation coupled with information communication and technology are increasingly making customers aware and demanding. Current businesses are not just competing on price, quality or service, but on other dimensions that did not exist two decades ago. To cope with customers' demands, organisations are re-defining their value offers and joining collaborative efforts with suppliers and other to create distinctive competitive advantages. The alignment through integration of value chain should be viewed as an opportunity for entering into a new era of organizational economic growth reflected not only in higher incomes, but also in the improved availability of better quality and much more differentiated goods and services.

The focus of much recent supply chain research has been the beneficial effect of supply chain members working together in a co-operative manner in order to improve overall effectiveness and reduce costs as a whole for the supply chain, particularly by process alignment. It is now recognised that at the level of the individual firm, improvements can be made in the value chains through meaningful alignment of supply networks for quantum leaps in performance.

In addition to shareholder alignment, the alignment with customers is equally critical. Since every member in a supply chain tends to maximise their own interests, optimal decisions made by one supply chain member may cause delivery delays and excessive inventories in another part of the supply chain. Ideally everyone in the supply chain should have the same objective to deliver the best value to the end consumers. That means a supply chain has to be aligned to deliver customer value, measured in terms of customer perceived benefits gained from a product/service compared to the cost of purchase.

The importance of customer alignment is supported by the customer-orientation literature and the need for aligning the demand creation processes with the demand fulfilment or SCM processes to achieve customer responsiveness. The relationship

between shareholder and customer alignment in terms of the extent to which they reinforce each other, or indeed are conflicting, is however not clearly explained in the supply chain literature. Despite general agreement on the need for supply chain alignment to achieve shareholder and customer value, SCM research and practice lacks knowledge on how exactly such an alignment can be achieved and what performance implications it has.

2.7 Research Gaps

Although there have been numerous studies in the field of supply chain alignment promotion all over the world researchers have focused on addressing one fundamental research question; how collaborative and coordinative issues in supply chains can be promoted (Vonderembse & Dismukes, 2015; Chi et al., 2020). Storey, Emberson and Reade (2015) attempted to identify critical alignment factors and emerging issues in supply chain management area, and demonstrated how to improve intervention effectiveness, increase particular relational behaviours like elimination of transactional trading, how inventory visibility promotes supply chain alignment, and how various predictive variables can prevent misalignment (Baier, Hartman & Moser, 2012).

Durach *et al*. (2019) and Mokadem, 2016) concentrated on the construction industry and the medical supply chains and the few studies in manufacturing firms have looked into the relationship between supply chain alignment factors and organizational performance or effects of a single variable such as information sharing on the alignment of value chains. In addition only a few studies in supply chain alignment in the value chains have been carried in Kenya and these studies are inclined more towards effects supply chain management practices on performance of firms. Most of these studies are also either case studies of certain firms or regions (Attia, 2015).

The study is unique in that it adopted an integrative approach that captured not only manufacturing firms in Kenya but also the core four factors in successful implementation of supply chain alignment, that is, management through their support for

alignment, relational behaviour through stakeholder, logistical and customer relational orientations, supplier relationship management through early supplier involvement, supplier development as well as inventory visibility. It is therefore a more comprehensive and integrative study that has not been the focus of researchers.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research design and data collection method that was employed in the study. The chapter is organized in sections. The first section looks at the design to be used the second covers the population and third at the sampling frame. Sample and sampling technique was dealt with in fourth section while section five operationalized variables. Section six dealt with data collection instruments and seven addressed data collection procedure further, section eight covered the validity and reliability testing while the last section concluded with data processing and analysis.

3.2 Research Design

Research design is the overall plan or strategy for data collection, measurement, analysis and utilization of data so as to obtain desired and valid information that is sufficiently precise and accurate (Tsikriktsis, 2015). This study adopted a mix of descriptive design and explanatpry research design. Descriptive was used because it sets out to describe weather supply chain alignment is related to performance of manufacturing firms in Kenya. Kothari (2014) argues that a descriptive survey research design is a systematic research method for collecting data from a representative sample of individuals using instruments composed of closed-ended and/or open-ended questions. Orodho (2014) describes a descriptive survey design as a design that seeks to portray accurately the characteristics of a particular individual, situation or a group. According to Wisker (2010) in a descriptive study, researchers observe, count, delineate, and classify. This design is one of the most widely used non-experimental research designs across disciplines to collect large amounts of survey data from a representative sample of individuals sampled from the targeted population. The study adopted the design as it helps describe the situation as it exists. Earlier, related studies had also utilized

descriptive research design such as those by Mugo (2012) and Rotich (2011) who studied strategic supply chain practices influence on performance of institutions in Kenya.

On the other hand, explanatory research design was used to establish and expound the relationship between the independent variables and the dependent variable. According to Setia (2016), an explanatory research design expounds on an unknown or less known research area by explaining the relationship between variables using the available data. The design can also go further and obtain data that can intensively explain the research phenomenon to bring a more understanding of the research area. An explanatory research design helps to estimate prevalence of the research problem within the population under study, it helps to learn about characteristics the population and the attitude and practices of individuals in a population (Leahy et al., 2010; Wang & Cheng, 2020). Through the explanatory research design, a study can bring more inference on the findings from descriptive data collected through the questionnaire. The design was used contemporaneously with the descriptive research design in order to adequately answer the research questions and test the research hypotheses.

3.2.1 Research Philosophy

Research philosophy refers to the assumptions and beliefs that govern the way we view the world (Saunders, Lewis & Thornhill, 2015) and can be said to be a belief about the way in which data about a phenomenon should be gathered, analyzed and used (Wang 2012). It is the foundation of knowledge, and the nature of that knowledge contains important assumptions about view of the world.

There are two extreme philosophical views regarding knowledge and reality (schools of thought). These are Positivism Interpretivism, and Pragmatism. Positivism relates to the philosophical stance of the quantitative research and entails working with an observable social reality to produce law-like generalizations. It promises unambiguous and accurate knowledge (Elkjaer and Simpson 2011). Interpretivism, like critical realism, developed

as a critique of positivism but from a subjectivist perspective. Interpretivism emphasizes that humans are different from physical phenomena because they create meanings. Pragmatism on the other hand, involves research designs that incorporate operational decisions based on 'what will work best' in finding answers for the questions under investigation (Halfpenny, 2015). Pragmatism argues that the most important determinant of the research philosophy adopted is the research question, one approach may be better than the other for answering particular questions (Saunders, Lewis & Thornhill, 2012). Pragmatism is a philosophical stance toward the formation of concepts, hypotheses, and theories and their justification (Collis & Hussey, 2014). According to pragmatism research philosophy, research question is the most important determinant of the research philosophy. Pragmatics can combine both, positivist and interpretivism positions within the scope of a single research according to the nature of the research question (Matta, 2015).

This study is guided by pragmatism philosophy. The choice of pragmatism stance in this study was informed by the fact that pragmatism paradigm provides a philosophical standpoint compatible with methodological characteristics of both qualitative and quantitative research. Pragmatism asserts that concepts are only relevant where they support action (Kelemen and Rumens 2008). It strives to reconcile both objectivism and subjectivism, facts and values, accurate and rigorous knowledge and different contextualized experiences. It does this by considering theories, concepts, ideas, hypotheses and research findings not in an abstract form, but in terms of the roles they play as instruments of thought and action, and in terms of their practical consequences in specific contexts (Elkjaer and Simpson 2011). This argument, thematically informs the basis of the current study.

The choice of pragmatism stance in this study was reinforced by Simpson and den Hond (2020) who studied the contemporary resonances of classical pragmatism for studying organization and organizing. The study affirmed pragmatism as process philosophy and its positioning of experience as both the start and end of inquiry, arguing that in the philosophy lay invaluable groundwork for the study of organization and organizing.

Creswell (2008) affirm that pragmatism is best suited for mixed methods research approach in that the paradigm balances between quantitative research and qualitative research. The pragmatic paradigm in line with the research problem applies all approaches to understanding the problem (Creswell, 2009). The paradigm balances between deductive logic used in quantitative research and inductive logic used in qualitative research (Teddlie & Tashakkori, 2010) To this end, with the research question central to this current study, pragmatism emerges as the best philosophical stance most likely to provide insights into the research question with no philosophical loyalty to any alternative paradigm in guiding the research methodology of this study,

3.3 Population of the Study

Nassiuma (2010) posits that population exist within space and time and researchers unequivocally specify population in terms of category and the geographical space. A population is also viewed as the total collection of elements about which the study wishes to make some inferences (Saunders, 2019). The 2017 KAM directory has listing of members (firms) by sectors which contains a register of 12 sub-sectors of those in manufacturing firms spread all over the country (KAM, 2019). KAM membership comprises of small, medium and large enterprises. The size is measured by their total assets. Large sized firms are the firms with total assets of above Kshs100 Million, medium-sized have between Kshs40 Million and Kshs100 Million by total assets; whereas small firms have assets under Kshs40 Million. This study used the large sized firms only. The population of the large sized registered members as per the directory is 461. This study used Cochran's formula to sample 160 large manufacturing firms from the total population.

The unit of analysis was the individual manufacturing firms while the unit of observation which defines the independent elements in a population was the heads of procurement within each of the selected manufacturing firms. The unit of observation is selected because they are the ones involved in execution of the firms' supply chain

management practices and thus stands high chances of providing reliable information on influence of supply chain alignment on performance of manufacturing firms in Kenya.

Table 3.1: Target Population

Segment	Population
Energy Sector	43
Chemical and Allied	62
Food, Beverage & Tobacco	100
Plastics & Rubber	54
Building & Construction	8
Paper and Printing	49
Textile and Garments	38
Timber Products	23
Motor Vehicle Assembly	17
Metal and Allied	39
Pharmaceutical & Medical Equipment	20
Leather Products & Footwear	8
Total	**461**

KAM (2021)

3.4 Sampling Frame

This frame defines a researcher's population of interest. A sampling frame is a list of all items where a representative sample is drawn for the purpose of research (Hayes & Scharkow, 2013). To ensure adequate coverage of the population of the manufacturers in Kenya and ease of access, the sample frame consisted of all the 12 sectors. Additionally, the register provides details of the geographical location of each firm.

3.5 Sample Size and Sampling Technique

3.5.1 Sample Size

According to Daniels (2019), a sample is deemed suitable if it captures the characteristics of the population sufficiently. To achieve this, the following formula was

used to calculate the sample size as advanced by Cochran (1977). The formula is suitable for categorical data (Jill & Roger, 2009).

$$n_0 = \frac{z^2 p(1-p)}{e^2}$$

Where,

n_0 is the required sample size.

Z is the confidence level at 95% (standard value of 1.96)

p is estimated rate of adoption of supply chain alignment by manufacturing firms and

e is the margin of error at 5% (standard value of 0.05).

The study estimated that 80% of manufacturing firms use supply chain alignment in their processes.

$$n_0 = \frac{z^2 p(1-p)}{e^2} = \frac{1.962 * 0.8 * (1-0.8)}{0.05^2}$$

$$= 246$$

Using the Cochran's formula above, the study gets a sample of 246 manufacturing firms. This was 49.29% of the population. Cochran further suggested that if calculated sample size exceeds 5% of the total population, the below formula should be used to correct it.

$$n_1 = \frac{n_0}{\{1 + \frac{n_0}{\text{population}}\}}$$

$$n_1 = \frac{246}{\{1 + \frac{246}{461}\}}$$

$$= 160$$

Where;

n_1 is the corrected sample size and n_0 the >5% sample calculated above. This gave a sample of 160.

Table 3.2: Sampling Table

Segment	Population	Sample Size
Energy Sector	43	15
Chemical and Allied	62	21
Food, Beverage & Tobacco	100	34
Plastics & Rubber	54	19
Building & Construction	8	3
Paper and Printing	49	17
Textile and Garments	38	13
Timber Products	23	8
Motor Vehicle Assembly	17	6
Metal and Allied	39	14
Pharmaceutical & Medical Equipment	20	7
Leather Products & Footwear	8	3
Total	**461**	**160**

3.5.2 Sampling Technique

Stratified sampling was then used to identify the firms that were studied. The firms were stratified according to categories (sub sectors) which are 12. Using proportional allocation, the proportion of each category which was to be studied was worked out as shown in the Table 3.2. In the next stage, each manufacturing firm in each category was given a serial number. Simple random sampling was employed to identify the firms to be studied. The above process is seen by Bryman and Bell (2011) as being efficient, representative, reliable and flexible and takes care of systematic bias that may result from non-respondents.

3.6 Data Collection Instruments

The research utilized a structured questionnaire to collect data. The questionnaire was divided into six sections. The first section focused on background information of the

organizations while the other five sections each focused on a single research objective. Saunders (2019) state that a questionnaire is a form or document with a set of questions deliberately designed to elicit responses from respondents or research informants for the purpose of collecting data or information. Structured questionnaires are those in which some control or guidance is given for the answer (Kothari, 2014).

3.7 Data Collection Procedures

Babbie (2011), states that data collection procedures specify the process of data collection. Data can be classified into primary and secondary data. Primary data is information that is collected directly from the field specifically for the purpose of a research project (Larry, 2013). Secondary data is the data that has been already collected by and readily available from other sources (Aguinis, 2015). In relation to the data collection procedure the study developed a timetable for data collection and scheduled appointments with the respondents, specifying in detail the date, time and place where the data was to be collected. Since the study was majorly based on supply chain alignment and its influence on performance of manufacturing firms, the target respondents were the heads of procurement in charge of supply chain management or its equivalent.

3.8 Pilot Study

The term pilot study is used in two different ways in social science research. It can refer to so-called feasibility studies which are small scale versions, or trial runs, done in preparation for the major study (Creswell, 2014). However, a pilot study can also be the pre testing or trying out of a particular research instrument (Gujarati, 2012). A pilot study might give advance warning about where the main research project could fail, where research protocols may not be followed, or whether proposed methods or instruments are inappropriate or too complicated (Nassiuma, 2010). The questionnaire was pilot tested on 10% of the members of the sampling frame who did not comprise the final sample. These were 16 firms. The responses obtained from this pilot study was

used to determine the discrimination, validity, reliability and multicollinearity of the questionnaire after which the relevant amendments was made to the questionnaire. According to Kothari (2014), discrimination of a questionnaire means that people with different scores on a questionnaire, should differ in the construct of interest to the study.

3.8.1 Reliability of Research Instruments

According to Orodho (2014) reliability is the ability of the questionnaire to produce the same results under the same conditions. To be reliable the questionnaire must first be valid. The most commonly used measure of scale reliability was developed by Cronbach and Meele (1955) who suggested that the data should be split into two in every conceivable way and correlation coefficient computed for each spilt. The average of these values is known as Cronbach's Alpha, which is the most common measure of scale reliability. A value of 0.7 and above is seen as an acceptable value for Cronbach's Alpha; values substantially lower indicate an unreliable scale (Kothari, 2014).

3.8.2 Validity of Research Instruments

According to Orodho (2014) validity basically means that a questionnaire measures what it is intended to measure. According to Larry (2013), validity is a difficult thing to assess and it can take three basic forms: content validity items on a questionnaire must relate to the construct being measured; criterion validity this is basically whether the questionnaire is measuring what it claims to measure and thirdly; factorial validity- this validity basically refers to whether the factor structure of the questionnaire makes intuitive sense. Validity is a necessary but not sufficient condition of a questionnaire (Saunders, Lewis & Thorn, 2009).

Content validity was assessed through review and verification of the extant literature for the items contained in the questionnaire. Construct validity was assessed from the correlations of items. Positive and significant correlations are expected for convergent validity while for divergent validity, items are expected to positively and significantly

correlate with one another, but not with items from other dimensions (Daniel, 2012).The questionnaire was pilot tested in selected respondents to establish if the respondents can answer the questions without difficulty. The feedback received has been used to fine tune the questionnaire before embarking on the actual data collection. Construct validity was tested by use of factor analysis using Principal Component Analysis (PCA). The items were run into the SPSS to come up with the extractions and the findings are as herein shown.

3.9 Data Analysis and Presentation

Data processing and analysis is essential to ensure that all relevant data is gathered for making contemplated comparisons and analysis (Kothari, 2014). Data analysis is the computation of certain measures along with searching for patterns of relationships that exist. Babbie (2011), states that data analysis can refer to a variety of specific procedures and methods. Data analysis involves goals; relationships; decision making; and ideas, in addition to working with the actual data itself. Simply put, data analysis includes ways of working with data to support the goals and plans of the study.

Data analysis can be categorized into descriptive (describes a set of data); exploratory (analyzing data sets to find previously unknown relationships); inferential (use a relatively small sample of data to say something about a bigger population); predictive (analyze current and historical facts to make predictions about future events); causal (to find out what happens to one variable when you change another); mechanistic (understand the exact changes in variables that lead to changes in other variables for individual objects).

This study adopted a descriptive data analysis and inferential data analysis. Descriptive data analysis was adopted for this study because descriptive analysis was used to describe the basic features of the data in a study. It provides simple summaries about the sample and the measures (Kothari, 2014). Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data (Bryman & Bell, 2011).

The study adopted inferential data analysis in order to enable it reach conclusions that extend beyond the immediate data alone to infer from the sample data about the population.

Inferential statistics facilitate inferences from sample data to population conditions (Saunders, 2019). The study used SPSS version 26 in analysing the quantitative data. The regression model took the form of:

$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$………………………………………………..…… I

Where:

Y = Performance of Manufacturing Firms

α is the y-intercept or model coefficient;

$\beta_1 - \beta_4$ = the coefficients of the independent variables;

X_1 = Relational Behavior

X_2 = Supplier Relationship Management

X_3 = Inventory visibility

X_4 = Operations and Processes

ε is the error term;

To aid in testing for moderation, model II was used:

$Y = \alpha + \beta_1X_1{*}Z + \beta_2X_2{*}Z + \beta_3X_3{*}Z + \beta_4X_4{*}Z + \varepsilon$……………………………..…… II

Where:

X = A computed independent variable from all the four independent variables

Z = Moderating Variable (Quality Controls and Certification)

To aid in testing for moderation, the moderating variable was computed by multiplying X by Z. A z –score was then computed for both X and Z to specify the precise location of each value within the distribution by indicating whether the score is above the mean (positive) or below the mean (negative). The numerical value of the z-score specifies the distance from the mean by counting the number of standard deviations between X and μ. The resultant scores give a distribution that has a mean score of zero and a standard deviation of one.

The z –score is calculated as:

$$Z = \frac{X - \mu}{\sigma}$$

Where:

Z = the standardized score

X = the X value

μ= the mean of the distribution

σ= the standard deviation of the distribution.

After the z score is computed, the following regression model was employed: There was a significant moderating effect if β_2 (X* Z) is statistically significant in the second model.

3.9.1 Operationalization of Study Variables

The concepts that formed the independent variable in this study are supply chain alignment issues. According to Bryman and Bell (2003), concepts are mental images or

perceptions and therefore, their meaning varies from person to person. To be useful in the study, concepts need to be converted in to variables which can be measured. The variables in this study was operationalized to enable quantitative measurement. The variables was operationalized in line with the objectives of the study. As illustrated in Table 3.3.

Table 3.3: Operationalization of Variables

Variable	How Variable was Measured	Statistical Model	Main Tools of Analysis/ Hypotheses Testing	Data Collection Tools
To establish the relationship between relational behavior and performance of manufacturing firms in Kenya.	a) Stakeholder Interactions b) Logistical Flexibility c) Responsiveness to customer feedback	$Y=\beta_0+\beta_1X_1+\varepsilon$ Where: Y= Performance of Manufacturing Firms β_0 = Constant β_1 = Coefficient of X_1 X_1 = Relational Behavior ε =Error term	Regression and Correlation Analysis; If P value is ≤0.05 research hypothesis is true	Questionnaire
To determine the relationship between supplier relationship management and performance of manufacturing firms in Kenya.	a) Early Supplier Involvement b) Supplier Development c) Strategic Collaborations	$Y = \alpha + \beta_2X_2 + \varepsilon$ Where: Y= Performance of Manufacturing Firms β_0 = constant β_2= Coefficient of X_2 X_2 = Supplier Relationship Management ε =Error term	Regression and Correlation Analysis; If P value is ≤0.05 research hypothesis is true	Questionnaire
To examine the relationship between inventory visibility and performance of manufacturing firms in Kenya.	a) Acquisition related costs b) Maintenance related costs c) Salvage related costs	$Y = \alpha + \beta_3X_3 + \varepsilon$ Where: Y= Performance of Manufacturing Firms β_0 = constant β_3= Coefficient of X_3 X_3 = Inventory visibility ε =Error term	Regression and Correlation Analysis; If P value is ≤0.05 research hypothesis is true	Questionnaire

To assess the relationship between operations and processes and performance of manufacturing firms in Kenya.	a) Avid Scheduling and Capacity Planning b) Optimum Loading and Routing c) Dispatch and Expediting Systems	$Y = \alpha + \beta_4 X_4 + \varepsilon$ Where: Y= Performance of Manufacturing Firms β_0 = constant β_4= Coefficient of X_4 X_4 = Operations And Processes ε =Error term	Regression and Correlation Analysis; If P value is ≤ 0.05 research hypothesis is true	Questionnaire
To determine the moderating effect of quality control and certifications on the relationship between supply chain alignment and performance of manufacturing firms in Kenya.	a) TQM b) Six Sigma c) ISO Certification	$Y = \alpha + \beta_1 X + \beta_2 (X*M) + \varepsilon$ Where: Y= Performance of Manufacturing Firms β_0 = Constant β = Beta Coefficients of X/M X = Supply Chain Alignment M = Quality Control and Certifications ε =Error term	Regression and Correlation Analysis	Questionnaire

3.10 Diagnostic Tests

The models are advanced on the assumption that there exists a linear relationship between the variables. After data collection, this is done to confirm whether the data collection instruments are reliable and valid and whether the set questions are aimed at addressing the set of justice. Diagnostic tests were carried out to establish whether the data collected met the assumptions of the regression model.

3.10.1 Normality Test

Normality test was carried out in the study. A regression model assumes that the population is normally distributed. To test for normality, this study used Shapiro-Wilk and Kolmogorov-Smirnov tests. Skewness and Kurtosis check for presence of normal distribution in a dataset. The values for asymmetry and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution (Orodho, 2014).

3.10.2 Linearity Test

Test for linearity was carried out. Linearity test is meant to establish whether there is a linear distribution, and whether the variables have any presence of correlation. This was done using the Pearson correlation coefficients.

3.10.3 Test for Multicollinearity

According to Kothari (2014), multicollinearity test is an evaluation of the level of correlation of the independent variables. In the present study, the Variance Inflation Factor (VIF) was used. Where VIF= 1/ (1-R^2); R^2= Coefficient of Determination. If any of the VIF is greater than 10, as a rule of thumb, multicollinearity is significantly large and consequently they are poorly estimated. Hence the variable was dropped from the model. If 5<VIF<10, then multicollinearity is moderate, if 5<VIF, then Multicollinearity is insignificant.

3.10.4 Test for Autocorrelation

Wisker (2010) define autocorrelation as the association of a time series with its future and own past values. The study used Durbin Watson measure to check on the existence of autocorrelation. Durbin Watson varies between 0 and 4 such that if d=2 then there is no problem of autocorrelation, if d< 2 then there is positive/persistent autocorrelation and if d>2 then the exits a negative autocorrelation.

3.10.5 Test for Heteroscedasticity

Regression model assumes that there is constant variance of the errors. Heteroscedasticity, which is a violation of homoscedasticity makes it problematic to measure the true forecast errors' standard deviation, and too narrow or too wide are usually the result. A plot of residuals versus predicted values was used to check for the convergence.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

The chapter presents the findings of the study on the relationship between supply chain alignment and the performance of manufacturing firms in Kenya. The chapter covers the response rate of the study, the results from the pilot test and the demographic data. The main findings of the study are captured in two main sub-sections which are the descriptive analysis sand the inferential analysis. The findings are systematically captured based on the specific objectives of the study which were to assess the influence of relational behavior, supplier relationship management, inventory visibility, operations and process and the moderating effect of quality control on the performance of manufacturing firms in Kenya. Diagnostics tests which focuses on testing the assumptions of the regression model are also captured in the chapter.

4.2 Response Rate

The number of questionnaires that were administered to all the respondents was 160. A total of 127 questionnaires were properly filled and returned from the manufacturing firm's employees. This represented an overall successful response rate of 79.4%. According to Creswell (2014), a response rate of 50% or more is adequate. Babbie (2004) also asserted that return rates of 50% are acceptable to analyze and publish, 60% is good and 70% is very good.

Table 4.1: Response Rate

Response	Frequency	Percent
Questionnaires Returned	127	79.4%
Questionnaires Unreturned	33	20.6%
Total	**160**	**100%**

4.3 Results of the Pilot Study

According to Morgan (2017) a pilot study can be done using 5% to 10% of the sample size. According to Kothari (2004), 10% of study population is appropriate for pilot test in an academic social science research. The study therefore, used 10% of the sample size to carry out the pilot test. This gave a sample size of 16 respondents and helped to identify any ambiguous and unclear questions. Feedback received was used to fine tune the questionnaire before embarking on the actual data collection. Research experts were also consulted to review the instrument to ascertain face validity.

The pilot study targeted 16 respondents drawn from areas meeting the threshold for the target population but outside study locale. The 16 respondents were surveyed using the questionnaire as it would be done in the actual study. Out of the 16 issued questionnaires, 14 were dully filled and returned for analysis. This represented a response rate of 87.5% which was considered adequate for analysis. The distribution of the response rate is as shown in Table 4.2.

Table 4.2: Response rate of the Pilot Study

Targeted Sample		**Response**		**None-response**		**Verdict**
Frequency 16	Percent 100%	Frequency 14	Percent 87.5%	Frequency 2	Percent 12.5%	The response meets the 60% threshold

4.3.1 Reliability of the Research Instrument

The first test carried out for the collected data after the pilot study was the test for reliability. Instrument reliability refers to the consistency of scores or answers from one administration of an instrument to another, and from one set of items to another (Fraenkel & Wallen, 2003). Reliability is the extent to which data collection techniques or analysis procedures would yield consistent findings (accuracy and precision of a measurement procedure) (Creswell, 2014). It establishes if the measure is able to yield the same results on other occasions, similar observations are reached by other observers

and transparency in the raw data. Reliability was used to check the internal consistency of the data measuring instrument. Cronbach's Alpha (α) was used to test for the instrument reliability. This is a test of reliability proposed by Cronbach (1952).

Cronbach (α) is the measure of the extent to which all the variables in the scale are positively related to each other (Ravi & Shankar, 2015). According to Cronbach (1952), the general assumption of the coefficient alpha is that the correlation between all the items under consideration in the study ought to be positive since they are measuring the same thing. This is to mean that if a correlation coefficient is negative, then the item is not reliable hence it has to be deleted/omitted from the research instrument. This further illustrates that a reliable coefficient should be between 0.00 and 1.00. A coefficient of 0.00 means the measurement is not consistency while a coefficient of 1.00 means the instrument is perfectly consistent. The results as shown in Table 4.3 revealed that economic relation as the first variable; relational behaviour had a Cronbach's alpha coefficient of 0.814. This was out of the 13 items/questions under the variable. This implied that the items met the threshold hence they were adopted for the main study.

On supplier relationship management, the Cronbach's alpha coefficient was 0.807 out of 13 questions. This being higher than the standard Cronbach's alpha coefficient of 0.70, the questions were concluded to have passed the reliability test hence adopted for the main data collection. Inventory visibility and operations and processes were the third and fourth independent variables respectively. The variables had Cronbach's alpha coefficients of 0.803 and 0.737 with 13 items respectively. To this end, they were both concluded to have met the threshold hence adopted for the main study. The dependent variable; performance of the manufacturing firms had a Cronbach's alpha coefficient of 0.822 with 8 items. This also had met the threshold hence all the 8 questions were adopted for the main data collection.

Table 4.3: Reliability Test Results

Variable	Number of Items	Cronbach's Alpha
Relation Behaviour	13	0.814
Supplier Relationship Management	13	0.807
Inventory visibility	13	0.803
Operations and Processes	13	0.737
Quality Control and Certification	13	0.799
Firm Performance	8	0.822

N = 14

4.3.2 Validity of the Research Instrument

Validity is the ability of the research instrument to measure what it is supposed to measure (Schindler, 2019). There are several types of validity tests that can be conducted on an instrument namely construct, content, and face validity (Trochim, Donnelly & Arora, 2016). Content validity was assessed through review and verification of the extant literature for the items contained in the questionnaire. Construct validity was assessed from the correlations of items. Positive and significant correlations are expected for convergent validity while for divergent validity, items are expected to positively and significantly correlate with one another, but not with items from other dimensions (Daniel, 2012).

The questionnaire was pilot tested in selected respondents to establish if the respondents can answer the questions without difficulty. The feedback received has been used to fine tune the questionnaire before embarking on the actual data collection. Construct validity was tested by use of factor analysis using Principal Component Analysis (PCA). The items were run into the SPSS to come up with the extractions and the findings are as herein shown. The results show that the extractions from all the questions were positive and above 0.300. According to Merlirt (2014), extractions of more than 0.30 are considered valid for the data collection. As the findings on Table 4.4 show, all the

variables had an average factor loading of over 0.65 hence the questions under the variables were concluded to have met the threshold for PCA which implies that they passed the validity test.

Table 4.4: Summary of the Principal Component Analysis

Variable	PCA Average Factor Loading
Relation Behaviour	0.668
Supplier Relationship Management	0.782
Inventory visibility	0.733
Operations and Processes	0.803
Quality Control and Certification	0.690
Performance of Manufacturing Firms	0.711

4.4 Demographic Characteristics

Demographics in a social science research are critical in establishing an rapport between the researcher and the respondents (Opoku, Ahmed, & Akotia, 2016). The background information of the organizations helps the researcher to identify the underlying prospects that could influence the responses or the way on the main questions in a study. The main background information of the manufacturing companies sort in this study included: organizations' period of operation, ownership category of the organizations, number of products and category of the organizations.

4.4.1 Organizations' Period of Operation

The study sought to establish the organizations period of operations. According to Cline, and Yore (2016), the age of the firms is one key factor that influences its supply chain network and ability to steer distribution systems across the market. The findings as shown in Figure 4.1 revealed that majority of the firms (52%) had been in operation for over 20 years, 21.3% had been in operation for a period between 16 and 20 years, 10.2% had operated for a period between 11 and 15 years, while 2.4% had operated of a period less than 5 years. The findings imply that most of the firms have been in operation for a

longer period of times which is an indication of their ability to have well established themselves in the market for extensive supply chain networks.

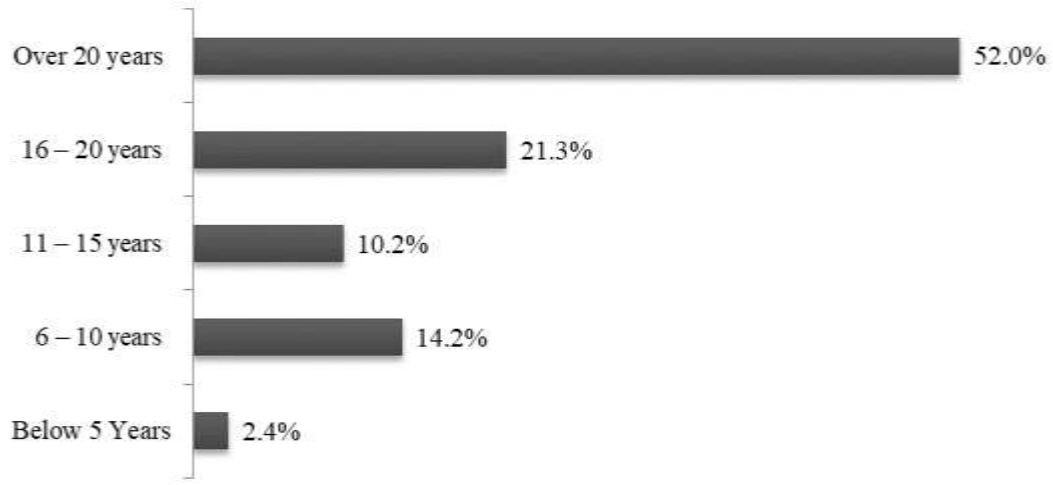

Figure 4.1: Period of Operation for the Organizations

4.4.2 Industry Category of the Manufacturing Firms

The study sought to find out the industry category of the manufacturing firms surveyed. The supply chain processes depend on the category of the industry which is based on the type of goods produced by the manufacturing entity. There are four major categories which include the basic goods manufacturing industry (manufactures machinery and equipment that is used to produce the finished consumer goods), the capital goods industry (manufactures machinery for utility production such as printing machines, and packaging machines), the intermediate goods industry (manufactures semi-finished goods) and the consumer goods industry (manufactures finished products such as food and beverages). As the findings in Figure 4.2 portray, 35.9% of the firms were in the consumer goods industry, 20.2% were in the intermediate goods sub-sectors, 24.2% were manufacturing capital goods while 19.7% were manufacturing basic goods that produce consumer goods.

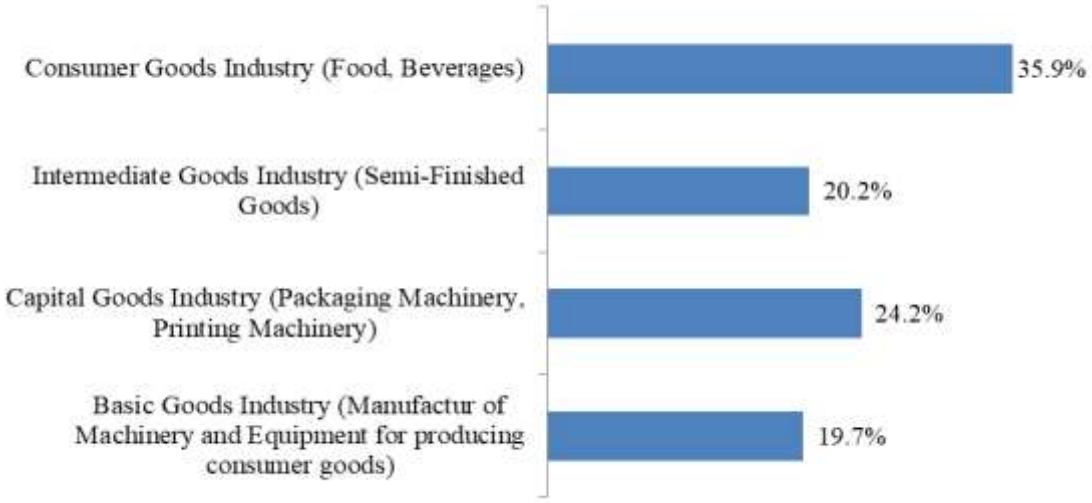

Figure 4.2: Manufacturing Category of the Firm

4.4.3 Number of Products

The study sought to establish the number of products that the surveyed manufacturing firms operated in. One of the major aspects that affect supply chain is the number and category of products that a company has to produce within the same ground of operations. The findings as shown in Figure 4.3 revealed that most of the companies had between 3 and 5 products while 26.8% had 2 to 1 product(s) and 19.7% of the companies had more than 10 products. The findings imply that some companies have to deal with a wider market than the others or have more product hence the preferences and tastes of the customers differ.

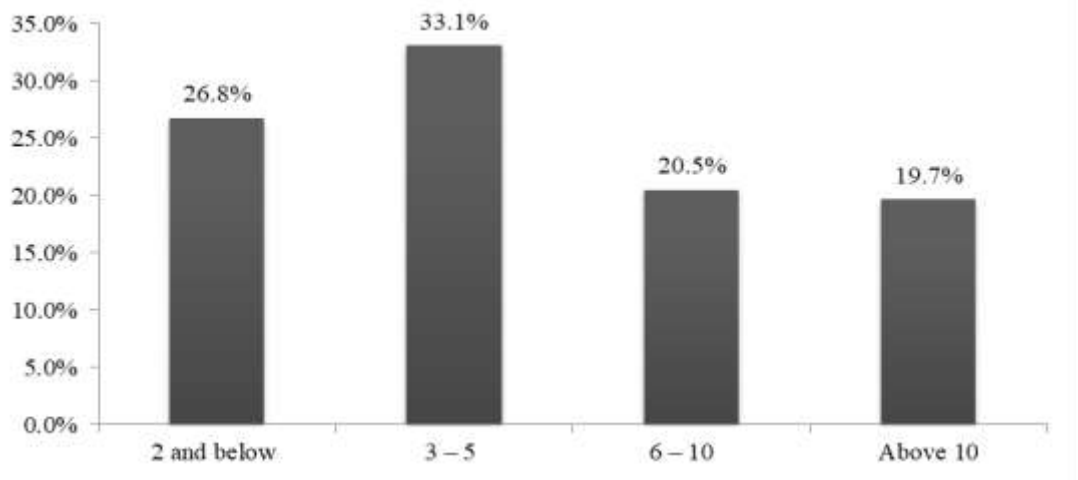

Figure 4.3: Number of Products

4.4.4 Category of the Firm

The study sought to establish the category of the surveyed firms. These categories are as categorized by the Kenyan association of Manufacturers based on the specialization of the firms. The results as shown in Figure 4.4 revealed that 23.6% of the firms were in the food and beverage processing category, 14.3% were in the chemical and allied category, 11.8% were in the paper and printing category while 9.4% were in the metal and allied category. Leather products and footwear and building and construction categories were the least with 0.8% and 1.6% respectively. The findings imply that the representation cut across all the categories of the large manufacturing firms hence the opinions in the supply chain would cut across the sector. Distribution of the respondents by their period of service in their respective organizations.

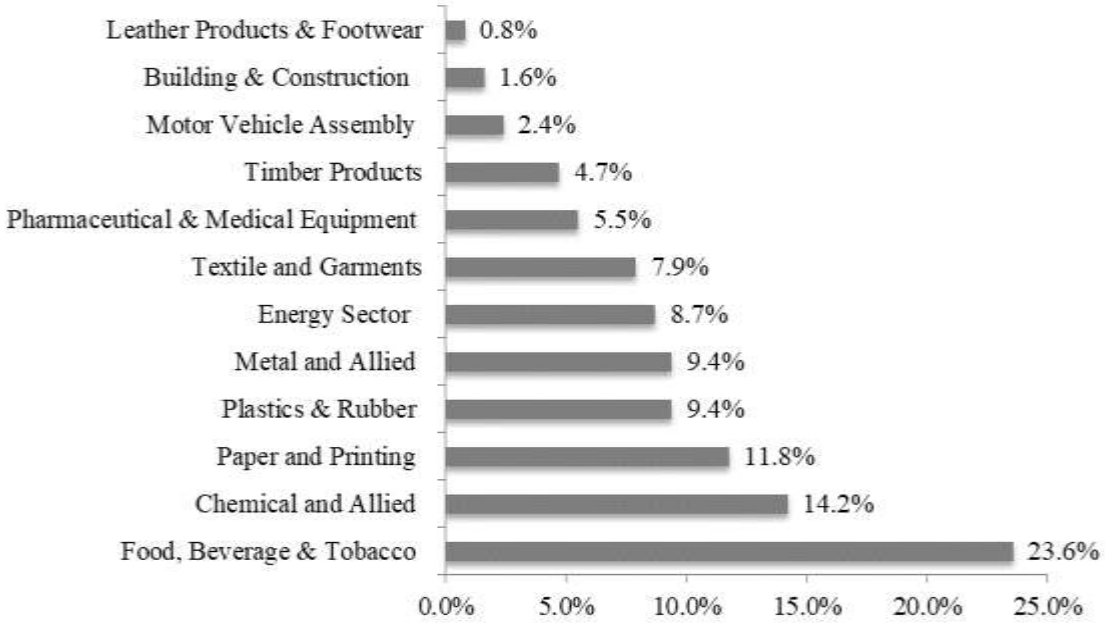

Figure 4.4: Category of the Firm

4.5 Descriptive Analysis of the Study

The subsection covers the findings on analysis of the descriptive statistics. The study focuses on the main variables of the study which are discussed systematically. The variables are the independent variables (relational behaviour, supplier relationship management, inventory ownership and operations and processes), the moderating variable (quality control and certification) and the dependent variable (performance of the manufacturing firms in Kenya. The main descriptive statistics captured include standard deviation, mean, and percentages.

4.5.1 Relational Behaviour

The first objective of the study was to assess the relationship between relational behaviour and performance of manufacturing firms in Kenya. The study sought to evaluate the influence of stakeholder interactions, logistical flexibility and responsiveness to customer feedback on the performance of manufacturing firms in Kenya. These were the main aspects of relational behaviour. The variable was assessed

using three main on the questionnaire. First, the respondents were asked to rate the extent to which their respective companies upheld the aspects of relational behaviour. Secondly, the respondents were asked to indicate their level of agreement on specific statements drawn from these aspects. Thirdly, the respondents were asked to rate the effectiveness of relational behaviour in influencing the performance of their respective companies.

The respondents were asked to indicate their level of agreement with specific statements on relational behaviour based on a 5-points Likert's scale where 1 was strongly disagree, 2 was disagree, 3 uncertain (neutral), 4 was agree and 5 was strongly agree. The findings are as shown in Table 4.5. As the findings portray, majority of the respondents (72.4%) agreed that the stakeholders effectively interacted with was a way of enhancing their commitment and connection to the organization. The respondents agreed that their respective organizations had embraced logistical flexibility as a way of saving on the costs of operations in their respective firms (Mean = 3.72; standard deviation = 0.89; agree = 42.5%; strongly agree = 19.7%).

It was further revealed that that responsiveness to customer feedback was upheld in most of the manufacturing firms as a way of enhancing cost reduction (agree = 39.4%; strongly agree = 22%). According to Chae, Yen, and Sheu (2015), relational behaviour is mainly aimed at enhancing the connection between the customer and the organization and between the suppliers and the organization. This relationship is directed towards minimizing the costs of operations and ensuring that the organization attracts and retains customers at the lowest cost possible.

The findings further revealed that majority of the respondents felt that the logistics frameworks adopted in their respective organizations were flexible and could allow adjustments as a way of enhancing the effective operating environment (Mean = 3.80; standard deviation = 0.97). The respondents agreed that there were follow-ups to ensure that the logistics timelines were adjustable when there was need for such adjustments (Agree = 50.4%; strongly agree = 28.3%). The findings further revealed that the

customer feedback platforms were adopted in most of the organizations surveyed as a way of embracing more effective customer engagement and that the customer queries were received and replied to timely (Mean = 3.96; standard deviation = 0.94).

The respondents agreed that their respective companies had embraced use of ICT in handling customer feedback and enhancing the communication between the organizations and the customers as evidenced by a mean of 4.12 and a standard deviation of 0.92. The findings are in line with those by Wagner and Bode (2013) who found out that enhancing the relationship between the company and its stakeholders is one of the key aspects of supply chain alignment that steer the performance and competitiveness of modern businesses. Theodorakioglou, Gotzamani, and Tsiolvas (2016) on the other hand argued that in a dynamic business environment such as the manufacturing industry, the relationship between the customers and the organization and between the organization and the suppliers is critical in enhancing the effectiveness of operations and steering organizational performance.

Table 4.5: Descriptive Results on Relational Behaviour Systems

Measurement Aspect	N	SD	D	U	A	SA	Mean	Std. Dev.
The company caries out a frequent stakeholder analysis practice to identify key stakeholders	127	1.6%	18.9%	7.2%	31.5%	40.9%	3.75	0.90
The stakeholders in the company are effectively involved in key decision making processes	127	0.8%	7.9%	29.1%	42.5%	19.7%	3.72	0.89
There are frequent stakeholder meetings to assess their views on various aspects on the organization	127	1.6%	13.4%	23.6%	39.4%	22.0%	3.67	1.01
There are flexible logistics frameworks in our company	127	1.6%	7.9%	26.0%	37.8%	26.8%	3.8	0.97
The management has embraced a way of rotating cycles and procedures in our logistics process	127	2.4%	6.3%	23.6%	39.4%	28.3%	3.85	0.98
There are follow-ups to ensure the timelines in our logistics process can be adjusted when need be	127	1.6%	4.7%	15.0%	50.4%	28.3%	3.99	0.87
There is a customer feedback platform to ensure customers receive feedback effectively	127	0.8%	11.8%	26.8%	37.8%	22.8%	3.7	0.97
The customer queries are received and replied to timely	127	0.8%	8.7%	15.7%	43.3%	31.5%	3.96	0.94
The company has embraced use of ICT in handling customer feedback and communication	127	0.8%	5.5%	21.3%	37.8%	34.6%	4.12	0.92

Rating the Uptake of the Relational Behaviour Aspects

The findings as shown in Table 4.6 revealed that stakeholder interactions was upheld by 66.8% of the respondents, logistical flexibility was upheld by 63.1% of the respondents while 76.5% of the respondents indicated that customer feedback was upheld in their

respective companies. The findings imply that customer feedback was the main aspect of relational behaviour that was embraced by majority of the manufacturing firms surveyed.

Table 4.6: Rating the Aspects of Relational Behaviour

Measurement Aspect	Percentage		
	Stakeholder Interactions	Logistical Flexibility	Customer Feedback
Not Upheld	7.3%	12.6%	8.2%
Least Upheld	16.6%	17.9%	11.4%
Not sure	9.3%	6.4%	3.9%
Moderately Upheld	61.7%	56.1%	54.8%
Highly Upheld	5.1%	7.0%	21.7%
Total	**100%**	**100%**	**100%**

Effectiveness of Relational Behaviour

The respondents were further asked to indicated the effectiveness of relational behaviour towards enhancing the performance of their respective organizations. The findings as shown in Table 4.7. The findings revealed that 50.4% of the respondents rated relational behaviour to be effective while 31.5% rated its effectiveness towards enhancing the effectiveness of their respective organizations to be ineffective. The findings imply that while a significant number considered relational behaviour to be effectively upheld in their respective organizations towards enhancing performance, there are others (a significant number as well – over 40%) who feel that relational behaviour has not been effectively instrumental in enhancing the performance of their respective organizations. According to James, and Faizul (2010), it is essential for modern business to be at the forefront of enhancing the relationship with their stakeholders as a way of enhancing competitiveness and performance.

Table 4.7: Rating the Effectiveness of Relational Behaviour

Category	Frequency	Percentage
Very Effective	33	26.0%
Effective	31	24.4%
Somehow Effective	23	18.1%
Ineffective	40	31.5%
Total	**127**	**100%**

4.5.2 Supplier Relationship Management

The second objective of the study was to assess the relationship between supplier relationship management and performance of manufacturing firms in Kenya. The study sought to assess the influence of early supplier involvement, supplier development and strategic collaborations on the performance of manufacturing firms in Kenya. The respondents were further asked to indicate their level of agreement or disagreement with specific statements on supplier relationship management. The responses were rated on a 5 point Likert scale ranging from; 1 = strongly disagree to 5 = strongly agree. The scores of 'strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'neutral' has been taken to represent a statement agreed upon, equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' have been taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5. The findings are as shown in Table 4.8.

As the findings portray, 43.3% of the respondents agreed that the suppliers in their respective organizations were adequately involved in designing the products based on the customer specifications while 54.2% disagreed. On the other hand, 50.7% of the respondents agreed that information in their respective companies was adequately and timely shared with the suppliers regarding the customer needs and specifications early enough before the need arises as a way of enhancing collaboration between the supplier and the company. However, 46.6% of the respondents were in disagreement with tis statement. It was further established that frequent meetings were held between the suppliers and the organizations surveyed as a way of intensifying continued

collaboration with the suppliers. This is evidenced by a mean of 4.13 and a standard deviation of 0.81. The findings imply that supply relationship management through early supplier involvement was not effectively upheld in most of the organizations. The findings are in line with those by Ellram (2015) who found that most organizations fail to achieve their objectives and performance goals as a result of poor relationship management with their suppliers which is most likely to affect quality of supplies, efficiency and customer satisfaction in the long-run.

The findings further revealed that most of the firms surveyed (56.4%) had an active and effective platform for sharing information with the suppliers to enhance continued collaboration and efficient communication. However, 34.7% indicated that they had no such platform which puts them at the risk of losing key suppliers which might cot their business. Majority of the firms also had proper and effective systems and procedures of dispute resolution with the suppliers in order to prolong the relationship (Agree = 43.3%; strongly agree = 31.5%; mean = 3.98; standard deviation = 0.91). The respondents further indicated that their respective companies frequently collaborated with the suppliers to come up with innovative ways of meeting customer needs and saving o costs of operations and that they had idea-sharing meetings and platforms to enable them brainstorm on how best to handle the concerns and needs of the clients (Mean = 3.92; standard deviation = 0.85).

Finally, the respondents agreed that their respective manufacturing firms had set measures to steer-up the continued collaboration with the supplies as evidenced by a mean of 3.97 and a standard deviation of 0.89. The findings imply that while a smaller majority of the companies have upheld supplier relationship management, there are still significant numbers who are yet to uphold supplier relationship management hence the need to focus on such area as manufacturing firms in Kenya. The findings are in line with those by Job (2015) who found out that supplier involvement is a key aspect towards development and enhancing the collaboration between the organization and the suppliers for efficiency, effectiveness and reliability in future.

Table 4.8: Descriptive Results on Supplier Relationship Management

Statement	N	SD	D	U	A	SA	Mean	Std. Dev.
Suppliers in our organization are adequately involved in designing the products based on the customer specifications	127	43.1%	11.0%	2.5%	30.7%	12.6%	3.39	0.95
Information is adequately and timely shared with the supervisors regarding the customer needs and specifications early enough before the need arises	127	21.6%	25.0%	2.8%	36.5%	14.2%	3.17	0.96
There are frequent meetings with the suppliers to intensify on how our company continues doing business with the suppliers	127	21.6%	4.7%	2.4%	47.2%	24.0%	4.13	0.81
There is an active and effective platform for sharing information with the suppliers to enhance continued collaboration and efficient communication	127	26.8%	7.9%	9.0%	30.4%	26.0%	3.82	0.93
There proper systems and procedures of dispute resolution with the suppliers for enhanced collaboration	127	12.0%	7.9%	5.3%	43.3%	31.5%	3.98	0.91
Our organization frequently collaborates with the suppliers to come up with ways of best serving the clients	127	20.0%	12.6%	4.5%	36.2%	26.8%	3.81	0.97
There are frequent engagements with our suppliers to share ideas	127	1.6%	1.6%	26.0%	44.9%	26.0%	3.92	0.85
The existing least of suppliers is frequently updated to ensure availability of variety of suppliers at the time of need	127	21.6%	4.7%	5.2%	45.7%	22.8%	3.87	0.87
The company has set measures to steer continued strategic collaboration with the suppliers	127	20.0%	5.5%	4.4%	37.8%	32.3%	3.97	0.89

Uptake of Supplier Relationship Management

The respondents were asked to rate the extent to which these three major aspects of supplier relationship management were upheld towards promoting the performance of their respective manufacturing firms. The findings as shown in Table 4.9 revealed that early supplier involvement was upheld by 59.8% of the surveyed firms, 64.5% upheld supplier development while strategic collaboration was upheld by 63.6% of the manufacturing firms surveyed. The findings implied that most of the manufacturing firms surveyed were keen to have supplier relationship management enhanced as a way of promoting effectiveness and efficiency in their operations. According to Osterlund, and Loven (2015), suppliers are essential in promoting the success of a business hence their continued development and enhancing the relationship with the latter is also critical for extended collaboration.

Table 4.9: Rating the Aspects of Supplier Relationship Management

	Sub-Variables		
Measurement Aspect	**Early Supplier Involvement**	**Supplier Development**	**Strategic Collaborations**
Not Upheld	2.4%	1.6%	12.4%
Least Upheld	33.1%	27.9%	21.6%
Not sure	4.6%	6.0%	2.5%
Moderately Upheld	41.7%	53.5%	34.2%
Highly Upheld	18.1%	11.0%	29.4%
Total	**100%**	**100%**	**100%**

Effectiveness of Supplier Relationship Management

The respondents were asked to indicate the extent to which supplier relationship management was essential in contributing to the performance of their respective companies. The findings as shown in Table 4.10 revealed that that 35.4% of the respondents rated the effectiveness of supplier relationship management to very effective, 36.2% indicated effective while 15% said that supplier relationship management was ineffective towards enhancing the performance of their respective

organizations. According to Manyega (2015) and Lukhoba, and Muturi (2015), suppliers are key drivers of the performance of modern businesses in that, their commitment to quality, efficiency and timeliness is what most of the companies require to attract and retain customers. Through upholding the right methods of supplier development, organizations are able to strengthen their reliability and operate in a minimal cost thus saving the cost of operations.

Table 4.10: Rating the Effectiveness of Supplier Relationship Management

Category	Frequency	Percentage
Very Effective	17	13.4%
Effective	19	15.0%
Somehow Effective	45	35.4%
Ineffective	46	36.2%
Total	**127**	**100%**

4.5.3 Inventory Visibility

The third objective of the study was to assess the relationship between inventory visibility and performance of manufacturing firms in Kenya. The main aspects of inventory visibility focused on the study were: inventory tracking, inventory maintenance visibility, and stocking levels. The respondents were asked to indicate their level of agreement with specific statements on inventory visibility. This was based on a five-points Likert's scale where 1 was strongly disagree, 2 was disagree, 3 was neutral, 4 was agree and 5 was strongly agree. The scores of ' strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'neutral' has been taken to represent a statement agreed upon, equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' have been taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5. The findings are as shown in Table 4.11.

The results revealed that majority of the respondent (3.76) agreed that their respective organizations had a framework for reducing the costs of acquiring inventory. The results

were varied as shown by a Standard deviation of 0.84. Further results indicated there were limits set on the levels of acquisition costs for the companies' inventory as evidenced by a mean of 3.54 and a standard deviation of 0.99. The results further indicated that most of the companies had put measures to ensure any additional cost of acquiring inventory is justifiable as evidenced by a mean of 3.76 and a standard deviation of 0.84. According to Semchenkova, Chulkova, and Lukasheva (2019), putting the appropriate measures for controlling inventory ownership costs is essential for marinating a proper flow of inventory and reducing costs.

The findings further portrayed that majority of the respondents were of the opinion that there were significant costs incurred in maintaining inventory in their respective companies and this is as shown by a mean of 3.81 and a standard deviation of 0.89. The respondents further agreed that their respective companies had put measures to control and minimize the inventory maintenance costs as shown by a mean of 3.69 and a standard deviation of 0.91. The findings imply that the maintenance of inventory is a cost that most of the companies incurred and felt the urge of minimizing this cost as a way of ensuring minimal costs of owning inventory. Tinkham et al. (2018) alludes that the inventory maintenance is essential for organizational performance but it is essential to minimize the costs of maintaining the inventory in order to reduce the entire cost of owning inventory.

The results further indicated that most of the surveyed companies carried out audits to establish which inventory should be maintained and those that should be disposed as shown by a mean of 3.97 and a standard deviation of 0.80. The respondents further indicated that their respective companies had at times incurred costs on recouping their inventory as evidenced by a mean of 3.83 and a standard deviation of 0.81. Results indicated that there were strategies taken by the respective companies to minimize the costs of salvaging inventory and that measures had been taken to reduce incidences where the companies were at risk of losing their inventory. The findings imply that inventory ownership has been upheld by most of the surveyed manufacturing firms and this could be a significant driver to their performance. The findings are in line with those

by Dobos and Vörösmarty (2019) who found out that through enhanced means of reducing the costs of inventory ownership, companies are able to save on the costs of operation and this significantly contributes to firm performance and competitiveness.

Table 4.11: Descriptive Results on Inventory visibility

Statement	N	SD	D	U	A	SA	Mean	Std. Dev.
Our organization tracks its inventory to ensure it has only the inventory required in given time	127	1.6%	9.4%	14.9%	32.3%	41.8%	3.76	0.87
The company monitors its inventory stocking levels and costs to enhance the performance	127	2.4%	14.2%	26.0%	42.5%	15.0%	3.54	0.99
Advance notices on inventories are given to enhance the performance of manufacturing firms in Kenya	127	1.6%	5.5%	24.4%	52.0%	16.5%	3.76	0.84
Our organization has a framework for tracking its inventory as a way of controlling production	127	1.6%	5.5%	25.2%	45.7%	22.0%	3.81	0.89
The management of our company's inventory has been upheld as a move to keep the inventory levels standard	127	0.0%	13.4%	24.4%	41.7%	20.5%	3.69	0.94
Our organization has established stocking levels which guides on production levels	127	0.0%	4.7%	19.7%	49.6%	26.0%	3.97	0.80
The stocking costs are minimized to steer cost-saving in our organization	127	0.8%	4.7%	24.4%	51.2%	18.9%	3.83	0.81
There is a standard stocking levels that the company adheres to	127	2.4%	5.5%	22.0%	47.2%	22.8%	3.83	0.92
There are allowed costs of stocking that should be upheld in our firm	127	1.6%	3.1%	15.7%	44.1%	35.4%	4.09	0.88

Preference of Aspects of Inventory visibility

The study sought to assess the respondents' views on the extent to which each of these factors was preferred in their respective organizations. The findings are as shown in Table 4.12. As the findings portray, 27.6% of the respondents were neutral on acquisition related costs. 11% of the respondents indicated that they preferred acquisition related costs in their respective firms. On maintenance related costs, 17.3% of the respondents were neutral on its preference in their respective companies while 52.8% indicated that it was preferred in their respective companies. On ranking salvage related costs, that 15% of the respondents were neutral on its preference in their firms, 37.8% of the respondents stated that it was strongly preferred while 43.3% indicated that it was preferred in their respective firms. The findings imply that inventory visibility aspects were fairly upheld in most of the firms but still there were those that did not prefer the aspects thus rendering them at risk of mismanaging their inventory..

Table 4.12: Rating the Preferences of Aspects of Inventory visibility

Measurement Aspect	**Percentage**		
	Acquisition Related costs	**Maintenance Related Costs**	**Salvage Related Costs**
Least Preferred	2.4%	0.8%	2.4%
Moderately Preferred	5.5%	11.8%	1.6%
Neutral	27.6%	17.3%	15%
Preferred	53.5%	52.8%	43.3%
Strongly Preferred	11%	17.3%	37.8%
Total	**100**	**100%**	**100**

Extent to which Inventory visibility Contributes to performance

The respondents were finally asked to indicate the extent to which inventory visibility influenced the performance of their respective organizations. The findings are as shown in Table 4.13. Tabulated results indicated that 44.1% of the respondents claimed that inventory visibility their organizations was somehow effective. 40.9% of the respondents ranked indicated that they inventory ownership implemented in the

organizations was ineffective. 11.8% of the respondents agreed that they inventory ownership system implemented in your organization was effective. Further results indicated that 3.1% regarded inventory ownership implemented in their organization as somehow effective.

Table 4.13: Rating the Effectiveness of Inventory visibility

Category	Frequency	Percentage
Very Effective	15	11.8%
Effective	4	3.1%
Somehow Effective	56	44.1%
Ineffective	52	40.9%
Total	**127**	**100%**

4.5.4 Operations and Processes

The fourth objective of the study was to establish the relationship between operations and processes and performance of manufacturing firms in Kenya. The respondents were asked to comment on statements regarding the operations and processes. The responses were rated on a Likert's scale ranging from; 1 = strongly disagree to 5 = strongly agree. The scores of ' strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'neutral' has been taken to represent a statement agreed upon, equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' have been taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5. Table 4.14 shows the findings.

The results revealed that majority of the respondent with a mean of (3.49) agreed with the statement that their respective companies had a plan for scheduling its supply chain activities and operations. The measure of dispersion around the mean of the statements was 0.907 indicating the responses were varied. The findings revealed that majority of the respondent as indicated by a mean of (3.84.) agreed with the statement Optimum loading and routing plays a significant role in cost reduction. The standard deviation for

the comment for poor performance was 1.003 showing a variation. The result revealed that majority of the respondent (3.79) agreed with the statement Salvage related costs play a significant role in cost reduction. The results were varied as shown by a standard deviation of 1.94. Further results indicated managers agreed to Avid scheduling and capacity planning play a significant role in improving productivity. The mean for this comment was 3.90 accompanied by a varied response of 0.87. Results indicated that managing distribution routes was done effectively for efficiency and timesaving in most of the surveyed firms.

The results indicated expediting systems plays a significant role in improving productivity. The mean for this comment was 4 accompanied by a varied response of 0.89. Results indicated that avid scheduling and capacity planning play a significant role in improving lead time. The mean for this comment was 3.93 accompanied by a varied response of 0.961. The findings further revealed that the respondents were of the opinion that modern technological-based systems had been adopted in their respective companies to ensure effective communication and flow of processes and that dispatch and expediting systems played a significant role in improving lead time.

Table 4.14: Descriptive Results on Operations and Processes

Measuring Aspect	N	SD	D	U	A	SA	Mean	Std. Dev.
Our company has a plan for scheduling its supply chain activities and operations	127	2.4%	9.4%	37.0%	39.4%	11.8%	3.49	0.90
There is a prior plan made to ensure effective flow of operations within the firm	127	1.6%	10.2%	18.9%	40.9%	28.3%	3.84	1.01
The adopted schedules and pans are adjustable to emerging issues and constraints	127	2.4%	9.5%	27.0%	46.8%	14.3%	3.79	1.94
A proper analysis is carried out to establish the appropriate loading framework	127	0.0%	7.9%	19.7%	47.2%	25.2%	3.9	0.87
Managing distribution routes is done effectively for efficiency and timesaving	127	0.0%	7.1%	22.8%	42.5%	27.6%	3.91	0.88
The company has embraced strategies that ensure the loading and routing of the supplies is cost efficient	127	2.4%	1.6%	20.5%	44.9%	30.7%	4.01	0.89
There is effective communication across the supply chain framework in our company	127	0.8%	6.3%	26.0%	33.1%	33.9%	3.93	0.96
Modern technological-based systems have been adopted to ensure effective communication and flow of processes	127	1.6%	7.9%	11.8%	48.8%	29.9%	4.02	0.91
Dispatch and expediting systems plays a significant role in improving lead time	127	2.4%	3.1%	15.7%	41.7%	37.0%	4.08	0.93

Preferences of aspects of Operations and Processes

The study sought to establish the extent to which the key aspects of operations and processes were upheld in the manufacturing firms in Kenya. The findings as shown in Table 4.15 revealed that 26% of the respondents were neutral n operations and

processes, 14.2% of the respondents ranked indicated that they strongly preferred operations and processes, 3.2% of the respondents agreed to least prefer operations and processes while 51.2% regarded preferred Operations and Processes. On optimum loading and routing, 17.3% of the respondents were neutral, 23.6 % of the respondents indicated that they strongly preferred optimal loading while 48.8% just preferred optimal loading. On dispatch and expediting systems, 18.1% of the respondents were neutral, 36.2% indicated that they strongly preferred the aspect while 41.7% just preferred dispatch and expediting systems.

Table 4.15: Rating the Aspects of Operations and Processes

Measurement Aspect	**Avid scheduling & capacity planning**	**Optimum loading a& routing**	**Dispatch & expediting systems**
Least preferred	3.2	0.8	1.6
Moderately Preferred	5.5	9.4	2.4
Neutral	26	17.3	18.1
Preferred	51.2	48.8	41.7
Strongly Preferred	14.2	23.6	36.2
Total	**100**	**100**	**100**

The respondents were further asked to rate the extent to which operation and processes contributed to the performance of their respective organizations. The results as show in Table 4.16 indicated that 37.8% of the respondents claimed that operations and processes in their Organization was somehow effective. 44.9% of the respondents ranked indicated that they inventory ownership implemented in your organization was ineffective. 15% of the respondents agreed that they inventory ownership system implemented in your organization was very effective.

Table 4.16: Rating he Effectiveness of Operations and Processes

Category	Frequency	Percentage
Very Effective	19	15.0%
Effective	3	2.4%
Somehow Effective	48	37.8%
Ineffective	57	44.9%
Total	**127**	**100%**

4.5.5 Quality Control and Certifications

The study sought to establish the relationship between quality control and certifications and performance of manufacturing firms in Kenya. The respondents were asked to indicate their level of agreement or disagreement on specific statements regarding influence of quality control and certifications on the performance of manufacturing firms in Kenya. The responses were rated on a Likert's scale ranging from; 1 = strongly disagree to 5 = strongly agree. The scores of 'strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'neutral' has been taken to represent a statement agreed upon, equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' have been taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5. The findings are as shown on Table 4.17.

As the results portray, majority of the respondent (56.8%) agreed that their companies were ISO certified. Majority also with a mean of (3.86) agreed with the statement that the six sigma tool plays a significant role in cost reduction. The measure of dispersion around the mean of the statements was 0.91 indicating the responses were varied. The findings revealed that majority of the respondent as indicated by a mean of (3.86) agreed with the statement ISO certifications play a significant role in cost reduction. The standard deviation for comments for poor performance was 0.932 showing a variation. The result revealed that majority of the respondent (3.84) agreed with the statement Strategic collaborations play a significant role in cost reduction.

Findings also showed that that majority of the respondent (3.82) agreed with the statement Early supplier involvement plays a significant role in improving productivity. The results were varied as shown by a standard deviation of 0.93. Further results indicated managers agreed to Supplier development play a significant role in improving productivity plays a significant role in improving productivity. Results indicated that Strategic collaborations play a significant role in improving productivity plays a significant role in improving productivity. The mean for this comment was 3.99 accompanied by a varied response of 0.97. Final results indicated the six sigma tool plays a significant role in improving productivity. The results further indicated that ISO certifications play a significant role in improving productivity. The mean for this comment was 3.98 accompanied by a varied response of 0.83. The results further indicated the six sigma tool plays a significant role in improving lead time.

Final results indicated ISO certifications plays a significant role in improving lead time. The mean for this comment was 3.98 accompanied by a varied response of 0.93.Results indicated that ISO certifications plays a significant role in improving productivity. The mean for this comment was 3.85 accompanied by a varied response of 0.91. The results indicated ISO certifications play a significant role in improving lead time.

Table 4.17: Descriptive Results on Quality Control and Certification

Measurement Aspect	N	SD	D	U	A	SA	Mean	Std. Dev.
Our company is ISO certified	127	38.6%	0%	4.6%	0%	56.8%	3.76	0.89
Controlling the quality of production through total quality management has been essential in reducing the operation costs	127	1.6%	16.5%	34.6%	38.6%	8.7%	3.86	0.93
The embrace of six sigma tool has been an essential way of enhancing quality in the organization	127	0.8%	10.2%	15.7%	48.8%	24.4%	3.84	0.91
Through ISO certifications, the company enhances its ability to deliver the right quality of goods	127	0.8%	7.1%	24.4%	42.5%	25.2%	3.98	0.93
Managing the quality of the products ensures higher productivity for enhanced performance	127	0.8%	6.3%	20.5%	39.4%	33.1%	3.91	0.83
Through use of six sigma the defects and errors in the production process in the company are reduced.	127	0.0%	5.5%	22.8%	47.2%	24.4%	3.9	0.94
Certifications plays an essential role in assuring the customers of the quality of the products	127	0.8%	8.7%	18.9%	43.3%	28.3%	4.08	0.86
Controlling the quality of the production processes has been essential in enhancing the lead time	127	1.6%	2.4%	17.3%	44.1%	34.6%	3.85	0.91
Analysing the key data from the supply chain processes through six sigma is an integral in enhancing the effectiveness of operations	127	0.8%	7.1%	24.4%	41.7%	26.0%	4.06	0.97
The company has been upholding certifications and quality control to ensure its supply chain processes are efficient	127	2.4%	4.7%	15.7%	38.6%	38.6%	3.86	0.93

Preference of Quality Control and Certification Aspects

Table 4.18 shows that results by respondents on ranking TQM in order of preference. Tabulated results indicated that 27.6% of the respondents were neutral on TQM. 14.2% of the respondents ranked indicated that they valued strongly preferred early supplier involvement. Further results indicated that 48.8% regarded preferred TQM whereas

18.1% strongly Preferred Stakeholder interactions. Finally, results indicated moderately preferred TQM was at a 14.2%. The results further indicated that 20.5 % of the respondents were neutral and Six Sigma. 13.4 % of the respondents ranked indicated that they valued strongly preferred Six Sigma. 0.8% of the respondents agreed to least prefer Six Sigma. Further results indicated that 58.3% regarded preferred Six Sigma whereas 13.4% strongly preferred. Finally, results indicated moderately preferred Six Sigma was at a 7.1%. On ISO Certification, the results indicated that 21.3% of the respondents were neutral n ISO Certification. 33.1% of the respondents ranked indicated that they valued strongly preferred ISO Certification. 0.8% of the respondents agreed to least prefer ISO Certification. Further results indicated that 42.5% regarded preferred ISO Certification whereas 33.1% Strongly Preferred. Finally, results indicated moderately preferred ISO Certification was at a 2.4%.

Table 4.18: Rating the Aspects of Quality Control and Certification

Measurement Aspects	**Percentage**		
	TQM	**Six Sigma**	**ISO Certification**
Least Preferred	0.8%	0.8%	0.8%
Moderately Preferred	8.7%	7.1%	2.4%
Neutral	27.6%	20.5%	21.3%
Preferred	48.8%	58.3%	42.5%
Strongly Preferred	14.2%	13.4%	33.1%
Total	100%	100%	100%

Effectiveness of Quality Control and Certification

The study further sought to establish the respondents rating of the influence of quality control and certification on the performance of manufacturing firms in Kenya. The results as shown in Table 4.19 indicated that 44.9% of the respondents claimed that quality control and certifications implemented their organization was very ineffective. 40.9% of the respondents ranked indicated that they quality control and certifications implemented in the organization was somehow effective, 11% of the respondents agreed that they quality control and certifications system implemented in the organization was

effective. Further results indicated that 3.1% regarded quality control and certifications implemented in their organization as very effective.

Table 4.19: Rating the Effectiveness of Quality Control and Certification

Category	Frequency	Percentage
Very Effective	4	3.1%
Effective	14	11.0%
Somehow Effective	52	11.0%
Ineffective	57	44.9%
Total	**127**	**100%**

4.5.6 Performance of Manufacturing Firms

The study sought to establish the performance of the manufacturing firms in Kenya. The respondents were asked to indicate their level of agreement on specific statements regarding the performance of their respective firms. This was based on a five-point Likert's scale. The findings as shown in Table 4.20 revealed that majority of the respondents disagreed that their company had been recording increased net profits in the past five years (Strongly disagree = 26%; disagree = 30.7%). Majority of the respondents (65.4%) disagreed that the lead time for their customers had been reduced continuously over the years in their respective firms, and a further majority disagreed that there had been a reduction in lead time which saw an increase in the number of customers in their respective companies (Mean =2.51; standard deviation = 1.28). It was further established that most of the organizations recorded high returns from their customers, as a result of not meeting the needs and specifications of the customers (35.7%; disagree = 21.6%). The respondents further disagreed that that there their respective companies had been meeting the quantity of productions needed in the market for the past five years.

Table 4.20: Descriptive Results on Organizational Performance

Statement	SD	D	N	A	SA	Mean	Std. Dev.
Our company has been recording increased net profits in the past five years	26.0%	30.7%	7.9%	26.8%	8.7%	2.61	1.35
The profit margins recorded by the company are sustainable to steer its expansion	27.9%	34.8%	6.8%	17.1%	13.4%	2.41	1.46
The lead time for the customers has been reducing continuously over the years in our firm	27.6%	37.8%	7.1%	15.7%	11.8%	2.46	1.35
The reduction in lead time has seen an increase in the number of customers in our company	27.6%	29.9%	10.2%	27.6%	4.7%	2.51	1.28
There are fewer returns/rejections by our customers than it was in the past	35.7%	21.6%	11.2%	13.4%	18.1%	2.39	1.47
There has been an increase in the volume of units produced by the company for the past five years	13.4%	18.1%	16.5%	37.8%	14.2%	3.21	1.27
The company has been meeting the quantity of productions needed in the market for the past five years	38.6%	33.1%	7.1%	13.4%	7.9%	2.18	1.29

The respondents were further asked to indicate the extent to which the aspects of supply chain alignment influenced the performance of their respective companies. The findings as shown in Figure 4.5 revealed relational behaviour was rated to be the most aspect influencing performance at 44.1% followed by operations and processes at 37.8%then supplier relationship management at 33.9% and lastly quality control and certification at 15.7%.

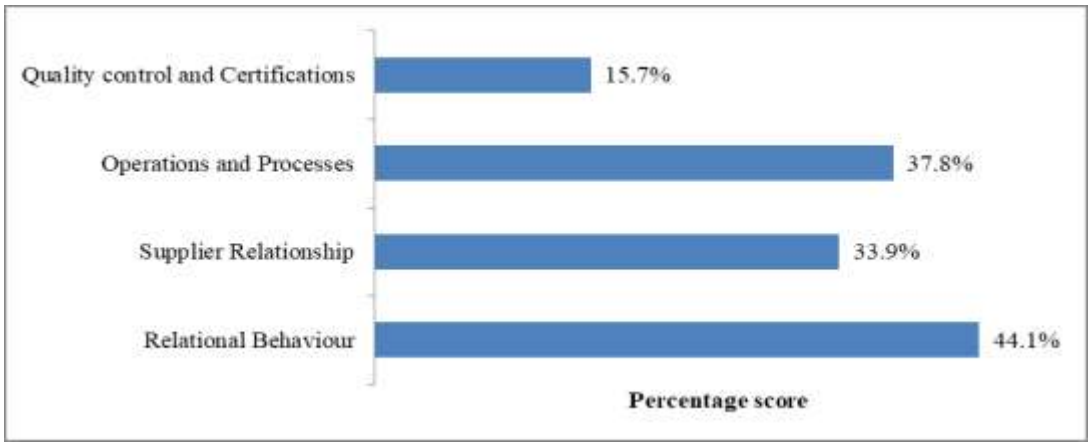

Figure 4.5: Rating the Influence of Supplier Alignment Aspects on Performance

4.6 Factor Analysis

Factor analysis was carried out as part of assessing the consistency and sampling adequacy of the research instruments. The subsection shows the results of the facto analysis which comprises of KMO sampling adequacy and Bartlett's Sphericity tests, the variance explained by each of the questions and the communalities/factor loadings of the items.

4.6.1 Factor Analysis for Relational Behavior

To examine whether the data collected was adequate and appropriate for inferential statistical tests such as the factor analysis, regression analysis and other statistical tests, two main tests were performed namely; Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. For a data set to be regarded as adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000).

Findings in Table 4.21 showed that the KMO statistic was 0.806 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5 (Field, 2000). In addition to the KMO test, the Bartlett's Test of Sphericity was also highly significant (Chi-square = 410.321 with 78degree of freedom, at $p < 0.05$). The

results of the KMO and Bartlett's Test are also shown. These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.21: Relational Behavior KMO Sampling Adequacy and Bartlett's Sphericity Tests

Kaiser-Meyer-Olkin Measure	0.806
Bartlett's Chi- Square	410.321
Bartlett's df	78
Bartlett's Sig.	0. 00

Factor analysis was conducted after successful testing of validity and reliability using KMO coefficient and Cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an Eigen value of 1 or more indicates a unique factor. Total Variance analysis indicates that the 13 statements on Relational Behavior can be factored into 1 factor. The total variance explained by the extracted factor is 55.11% as shown in Table 4.22.

Table 4.22: Relational Behavior Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.537	34.901	34.901	4.537	34.901	34.901
2	1.34	10.31	45.211	1.34	10.31	45.211
3	1.277	9.827	55.038	1.277	9.827	55.038
4	0.942	7.246	62.283			
5	0.8	6.151	68.434			
6	0.744	5.725	74.16			
7	0.628	4.829	78.988			
8	0.569	4.379	83.367			
9	0.537	4.134	87.501			
10	0.534	4.107	91.608			
11	0.406	3.125	94.733			
12	0.355	2.733	97.466			
13	0.329	2.534	100			

Factor analysis was conducted on statements regarding Relational Behavior (Table 4.23) and all the thirteen statements attracted a coefficient of more than 0.4 hence were retained for further analysis. According to Rahn (2010) and Zandi (2006) a factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Black (2002) who asserts that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

Table 4.23: Relational Behavior Factor Analysis Component Matrix

Statement	Loading
Extent to which Stakeholder interaction is upheld in the organization	0.431
Extent to which Logistical flexibility is upheld in the organization	0.413
Extent to which Responsiveness to customer feedback is upheld in the organization	0.546
Extent to which Relational behavior system implemented is upheld in the organization	0.669
The company caries out a frequent stakeholder analysis practice to identify key stakeholders	0.632
The stakeholders in the company are effectively involved in key decision making processes	0.600
There are frequent stakeholder meetings to assess their views on various aspects on the organization	0.618
There are flexible logistics frameworks in our company	0.638
The management has embraced a way of rotating cycles and procedures in our logistics process	0.686
There are follow-ups to ensure the timelines in our logistics process can be adjusted when need be	0.470
There is a customer feedback platform to ensure customers receive feedback effectively	0.483
The customer queries are received and replied to timely	0.488
The company has embraced use of ICT in handling customer feedback and communication	0.482
Extraction Method: Principal Component Analysis.	

4.6.2 Factor Analysis for Supplier Relationship Management

To examine whether the data collected was adequate and appropriate for inferential statistical tests such as the factor analysis, regression analysis and other statistical tests, two main tests were performed namely; Kaiser-Meyer-Olkin (KMO) Measure of

Sampling Adequacy and Bartlett's Test of Sphericity. For a data set to be regarded as adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000).

Findings in Table 4.24 showed that the KMO statistic was 0.845 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5 (Field, 2000). In addition to the KMO test, the Bartlett's Test of Sphericity was also highly significant (Chi-square = 465.491 with 78 degree of freedom, at $p < 0.05$). These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.24: Supplier Relationship Management KMO Sampling Adequacy and Bartlett's Sphericity Tests

Kaiser-Meyer-Olkin Measure	0.845
Bartlett's Chi- Square	465.491
Bartlett's df	78
Bartlett's Sig.	0. 000

Factor analysis was conducted after successful testing of validity and reliability using KMO coefficient and Cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an Eigen value of 1 or more indicates a unique factor. Total Variance analysis indicates that the 13 statements on executive compensation can be factored into 1 factor. The total variance explained by the extracted factor is 52.453 % as shown in Table 4.25.

Table 4.25: Supplier Relationship Management Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.142	31.862	31.862	4.142	31.862	31.862
2	1.362	10.479	42.341	1.362	10.479	42.341
3	1.315	10.112	52.453	1.315	10.112	52.453
4	0.945	7.272	59.725			
5	0.905	6.959	66.684			
6	0.779	5.99	72.674			
7	0.72	5.538	78.212			
8	0.635	4.883	83.095			
9	0.557	4.284	87.379			
10	0.518	3.988	91.367			
11	0.403	3.103	94.47			
12	0.401	3.087	97.556			
13	0.318	2.444	100			

Extraction Method: Principal Component Analysis.

Factor analysis was conducted on statements regarding Supplier Relationship Management (Table 4.26) and all the thirteen statements attracted a coefficient of more than 0.4 hence were retained for further analysis. According to Rahn (2010) and Zandi (2006) a factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Black (2002) who asserts that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

Table 4.26: Supplier Relationship Management Factor Analysis Component Matrix

Statement	Communalities
To what extent have you upheld early supplier involvement in your organization	0.427
To what extent have you upheld supplier development in your organization	0.43
To what extent have you upheld strategic collaborations in your organization	0.636
To what extent have you upheld supplier relationship management_ system in your organization	0.738
Suppliers in our organization are adequately involved in designing the products based on the customer specifications	0.477
Information is adequately and timely shared with the supervisors regarding the customer needs and specifications early enough before the need arises	0.64
There are frequent meetings with the suppliers to intensify on how our company continues doing business with the suppliers	0.537
There is an active and effective platform for sharing information with the suppliers to enhance continued collaboration and efficient communication	0.494
There proper systems and procedures of dispute resolution with the suppliers for enhanced collaboration	0.703
Our organization frequently collaborates with the suppliers to come up with ways of best serving the clients	0.535
There are frequent engagements with our suppliers to share ideas	0.314
The existing least of suppliers is frequently updated to ensure availability of variety of suppliers at the time of need	0.521
The company has set measures to steer continued strategic collaboration with the suppliers	0.566
Extraction Method: Principal Component Analysis.	

4.6.3 Factor Analysis for Inventory Visibility

To examine whether the data collected was adequate and appropriate for inferential statistical tests such as the factor analysis, regression analysis and other statistical tests, two main tests were performed namely; Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. For a data set to be regarded as

adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000).

Findings in Table 4.27 showed that the KMO statistic was 0.866 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5 (Field, 2000). In addition to the KMO test, the Bartlett's Test of Sphericity was also highly significant (Chi-square = 421.228 with 78 degree of freedom, at $p < 0.05$). The results of the KMO and Bartlett's

Table 4.27: Inventory visibility KMO Sampling Adequacy and Bartlett's Sphericity Tests

Kaiser-Meyer-Olkin Measure	0.866
Bartlett's Chi- Square	421.228
Bartlett's df	78
Bartlett's Sig.	0. 0

Factor analysis was conducted after successful testing of validity and reliability using KMO coefficient and Cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an Eigen value of 1 or more indicates a unique factor. Total Variance analysis indicates that the 13 statements on executive compensation can be factored into 1 factor. The total variance explained by the extracted factor is 53.848% as shown in Table 4.28.

Table 4.28: Inventory visibility Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.414	33.954	33.954	4.414	33.954	33.954
2	1.412	10.859	44.813	1.412	10.859	44.813
3	1.174	9.035	53.848	1.174	9.035	53.848
4	0.938	7.216	61.064			
5	0.796	6.124	67.187			
6	0.718	5.52	72.707			
7	0.631	4.851	77.558			
8	0.589	4.529	82.087			
9	0.555	4.269	86.356			
10	0.492	3.786	90.142			
11	0.481	3.702	93.844			
12	0.412	3.167	97.011			
13	0.389	2.989	100			

Extraction Method: Principal Component Analysis.

Factor analysis was conducted on statements regarding Inventory visibility (Table 4.29) and all the thirteen statements attracted a coefficient of more than 0.4 hence were retained for further analysis. According to Rahn (2010) and Zandi (2006) a factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Black (2002) who asserts that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

Table 4.29: Inventory visibility Management Factor Analysis Component Matrix

Statement	Component
What is the extent of upholding stocking levels in your organization	0.492
To what extent has your organization upheld inventory maintenance visibility	0.477
To what extent has your company embraced inventory tracking mechanisms	0.606
Our organization tracks its inventory to ensure it has only the inventory required in given time	0.712
The company monitors its inventory stocking levels and costs to enhance the performance	0.649
Advance notices on inventories are given to enhance the performance of manufacturing firms in Kenya	0.632
Our organization has a framework for tracking its inventory as a way of controlling production	0.568
That management of the our company's inventory has been upheld as a move to keep the inventory levels standard	0.477
Our organization has established stocking levels which guides on production levels	0.627
The stocking costs are minimized to steer cost-saving in our organization	0.536
There is an established standard stocking levels that the company must adhere to	0.673
There are allowed costs of stocking and inventory that should be upheld in our firm	0.404

Extraction Method: Principal Component Analysis.

4.6.4 Factor Analysis for Operations and Processes

To examine whether the data collected was adequate and appropriate for inferential statistical tests such as the factor analysis, regression analysis and other statistical tests, two main tests were performed namely; Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. For a data set to be regarded as adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000).

Findings in Table 4.30 showed that the KMO statistic was 0.751 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5

(Field, 2000). In addition to the KMO test, the Bartlett's Test of Sphericity was also highly significant (Chi-square = 377.819 with 78degree of freedom, at $p < 0.05$).

Table 4.30: Operations and Processes KMO Sampling Adequacy and Bartlett's Sphericity Tests

Kaiser-Meyer-Olkin Measure	0.751
Bartlett's Chi- Square	377.819
Bartlett's df	78
Bartlett's Sig.	0. 0

Factor analysis was conducted after successful testing of validity and reliability using KMO coefficient and Cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an Eigen value of 1 or more indicates a unique factor. Total Variance analysis indicates that the 13 statements on executive compensation can be factored into 1 factor. The total variance explained by the extracted factor is 57.603% as shown in Table 4.31.

Table 4.31: Operations and Processes Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.918	30.14	30.14	3.918	30.14	30.14
2	1.303	10.027	40.166	1.303	10.027	40.166
3	1.143	8.795	48.962	1.143	8.795	48.962
4	1.123	8.641	57.603	1.123	8.641	57.603
5	0.964	7.416	65.019			
6	0.829	6.375	71.393			
7	0.756	5.814	77.207			
8	0.693	5.328	82.535			
9	0.647	4.979	87.514			
10	0.534	4.109	91.623			
11	0.456	3.511	95.134			
12	0.353	2.716	97.85			
13	0.28	2.15	100			

Extraction Method: Principal Component Analysis.

Factor analysis was conducted on statements regarding Operations and Processes (Table 4.32) and all the thirteen statements attracted a coefficient of more than 0.4 hence were retained for further analysis. According to Rahn (2010) and Zandi (2006) a factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Black (2002) who asserts that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

Table 4.32: Communalities for Operations and Processes

Statements	Communalities
To what extent has your company embraced avid scheduling and capacity planning	0.547
What is the extent of embracing optimum loading and routing in your company	0.461
To what extent has your company embraced dispatch and expediting systems	0.639
What extent has your company embraced operations and Processes indicators	0.638
Our company has a plan for scheduling its supply chain activities and operations	0.613
There is a prior plan made to ensure effective flow of operations within the firm	0.612
The adopted schedules and pans are adjustable to emerging issues and constraints	0.654
A proper analysis is carried out to establish the appropriate loading framework	0.69
Managing distribution routes is done effectively for efficiency and timesaving	0.569
The company has embraced strategies that ensure the loading and routing of the supplies is cost efficient	0.609
There is effective communication across the supply chain framework in our company	0.567
Modern technological-based systems have been adopted to ensure effective communication and flow of processes	0.547
Dispatch and expediting systems plays a significant role in improving lead time	0.643

Extraction Method: Principal Component Analysis.

4.6.5 Factor Analysis for Quality Control and Certifications

To examine whether the data collected was adequate and appropriate for inferential statistical tests such as the factor analysis, regression analysis and other statistical tests, two main tests were performed namely; Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. For a data set to be regarded as adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000).

Findings in Table 4.33 showed that the KMO statistic was 0.788 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5 (Field, 2000). In addition to the KMO test, the Bartlett's Test of Sphericity was also highly significant (Chi-square = 382.794with 78 degree of freedom, at $p < 0.05$).

Table 4.33: Quality Control and Certifications Sampling Adequacy and Bartlett's Sphericity Tests

Kaiser-Meyer-Olkin Measure	0.788
Bartlett's Chi- Square	382.794
Bartlett's df	78
Bartlett's Sig.	0. 00

Factor analysis was conducted after successful testing of validity and reliability using KMO coefficient and Cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an Eigen value of 1 or more indicates a unique factor. Total Variance analysis indicates that the seven statements on product quality can be factored into 1 factor. The total variance explained by the extracted factor is 58.096% as shown in Table 4.34.

Table 4.34: Quality Control and Certifications Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.078	31.369	31.369	4.078	31.369	31.369
2	1.273	9.791	41.16	1.273	9.791	41.16
3	1.175	9.037	50.197	1.175	9.037	50.197
4	1.027	7.899	58.096	1.027	7.899	58.096
5	0.885	6.806	64.902			
6	0.834	6.415	71.317			
7	0.777	5.979	77.296			
8	0.648	4.984	82.28			
9	0.58	4.461	86.741			
10	0.569	4.375	91.115			
11	0.467	3.59	94.706			
12	0.374	2.879	97.584			
13	0.314	2.416	100			

Extraction Method: Principal Component Analysis.

Factor analysis was carried out on statements regarding executive compensation and product quality and attracted coefficients of more than 0.4, hence seven statements were retained and one statements were dropped for analysis. According to Rahn (2010) and Zandi (2006) a factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Black (2002) who asserts that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions. Table 4.35 shows all the coefficients for the 13 statements.

Table 4.35: Quality Control and Certifications factor analysis Component Matrix

Statements	Communalities
Upholding Total quality management has been effective in our company	0.532
Our company has effectively embraced Six Sigma tools to a great extent	0.485
To what extant has ISO Certification been upheld as a quality control aspect in your organization?	0.694
Our company is ISO certifies	0.777
Controlling the quality of production through total quality management has been essential in reducing the operation costs	0.64
The embrace of six sigma tool has been an essential way of enhancing quality in the organization	0.522
Through ISO certifications, the company enhances its ability to deliver the right quality of goods	0.487
Managing the quality of the products ensures higher productivity for enhanced performance	0.589
Through use of six sigma the defects and errors in the production process in the company are reduced.	0.45
Certifications plays an essential role in assuring the customers of the quality of the products	0.641
Controlling the quality of the production processes has been essential in enhancing the lead time	0.628
Analysing the key data from the supply chain processes through six sigma is an integral in enhancing the effectiveness of operations	0.48
The company has been upholding certifications and quality control to ensure its supply chain processes are efficient	0.625

Extraction Method: Principal Component Analysis.

4.7 Diagnostic Tests

The results of the tests for the model assumptions are as herein presented. The diagnostic tests carried out in the study included the normality test, the linearity test, test for multicollinearity, autocorrelation test and the test for heteroscedasticity. The findings are shown systematically per each test.

4.7.1 Normality Test

The normality test was carried out in the study to ensure that the data collected was normally distributed. The regression model assumes that the data used in analysis is normally distributed such that it forms a linear pattern. A normally distributed data takes the form of a symmetric bell-shaped curve. The quantile-quantile plot (Q-Q plot) and the Kolmogorov-Smirnov (K-S) and Shapiro-Wilk tests were used to test for normality in the study. If two distributions match, the points on the plot formed a linear pattern passing through the origin with a unit slope. As the findings in Table 4.36 reveal, the significant values under both Kolmogorov-Smirnov and Shapiro-Wilk are above 0.05 an indication that they are insignificant. This therefore implies that the data is normally distributed.

Table 4.36: Normality Test Results

	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Relational Behaviour	.074	127	.085	.984	127	.147
Supplier Relationship Management	.086	127	.072	.984	127	.138
Inventory visibility	.113	127	.110	.979	127	.085
Operations and Processes	.093	127	.069	.984	127	.137
Quality Control and Certification	.141	127	.201	.968	127	.094
Performance of Manufacturing Firms	.075	127	.079	.987	127	.267

a. Lilliefors Significance Correction

Q-Q Plots for Normality Test

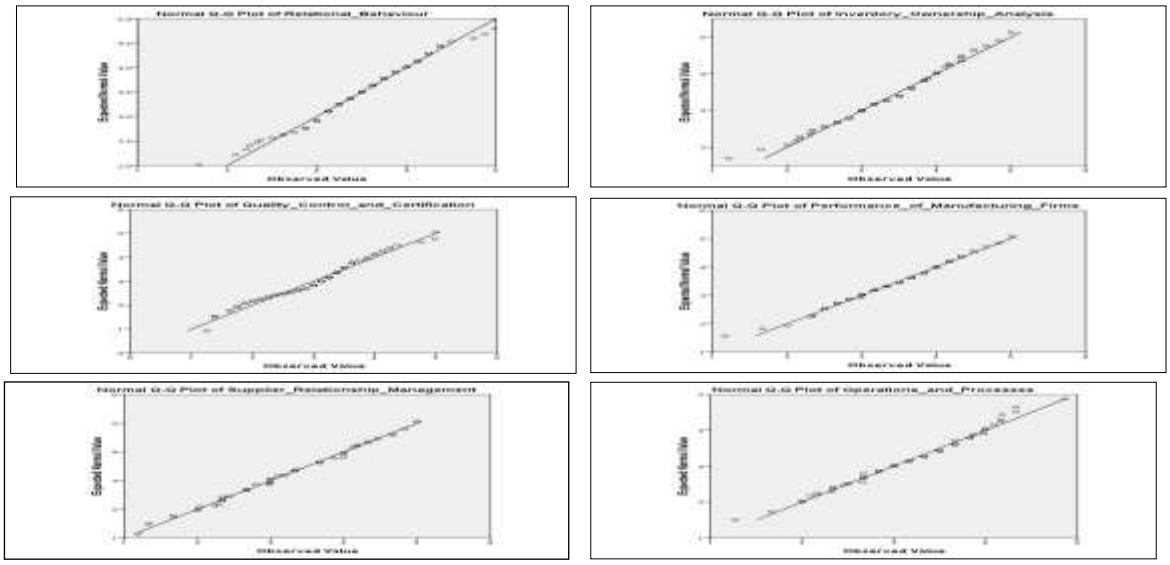

Figure 4.6: Q-Q Plot for Normality Test

Overall Normality

As the histogram results on the overall normality test in Figure 4.7 reveal, the overall normality was achieved in the data set. This is as evidenced by the normal curve obtained from the histogram bars.

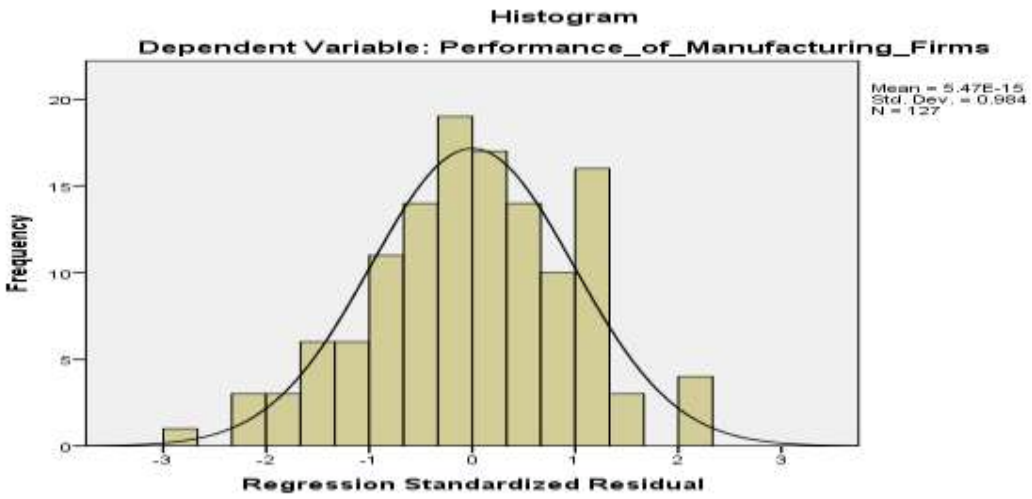

Figure 4.7: Histogram for Normality Test

4.7.2 Linearity Test

According to Cuestas and Regis (2013) linearity refers to a situation where a dependent variable has a liner relationship with one or more independent variables and, thus, can be computed as the linear function of the independent variable(s). In this study, linearity test was carried out where the Goodness of Fit test was applied using a scatter plot. This helped in summarizing the discrepancy between the observed values and the projected values in terms of the plots under a statistical model. As the findings in Figure 4.8 reveal that all the coefficients for the variables had significant correlations as shown by the positive gradient obtained in the scatter plot.

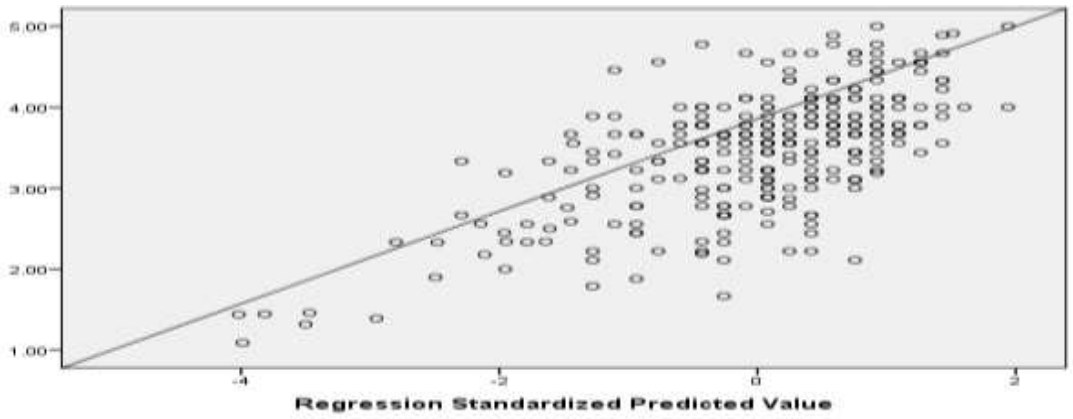

Figure 4.8: Scatter plot for Linearity Test

4.7.3 Test for Multicollinearity

According to Damodar (2010), linear regression analysis assumes that independent variables are not correlated with each other meaning there is no linear relationship among the explanatory variables. On that matter therefore, Multicollinearity is the existence of a perfect relationship between two variables which are both predictors in a given model. As noted by Babbie (2002) this relationship in many cases makes it extremely difficult to estimate the individual coefficients of the variables. In this study, multicollinearity test was carried out by the use Variance Inflation Factor (VIF). This method involves calculating the tolerance values from which the VIF values are obtained through reciprocal of the tolerance values. The findings as shown in Table 4.37 reveals that VIF values of the variables are between 1.429 and 1.115. According to Cuestas and Regis (2013), the widely accepted VIF can be between below 5 for cases with low correlation and below 10 for cases with moderate correlation. The findings therefore imply that for the variables in the study, there was no multicollinearity.

Table 4.37: Results of the Multicollinearity Test

Variables	Collinearity Statistics	
	Tolerance	VIF
Relational Behaviour	.896	1.115
Supplier Relationship Management	.852	1.174
Inventory visibility	.797	1.255
Operations and Processes	.700	1.429

4.7.4 Test for Autocorrelation

One of the basic assumptions in linear regression model is that the random error components or disturbances are identically and independently distributed. This is what is called autocorrelation. In a regression model, therefore, it is assumed that the correlation between the successive disturbances is zero. In this study, the DW statistic was used to test for autocorrelation where Ordinary Least Square (OLS) residuals with values ranging from 0 to 4 were adopted. If the DW value is 4 then there is negative autocorrelation, 2 means no autocorrelation and 0 means positive autocorrelation. In the event of autocorrelation, there is need to transform the model so that the error term is serially independent, then apply OLS to the transformed model to give the usual Best Linear Unbiased Estimator (BLUE). The findings as shown in Table 4.38 reveal, the DW value for the model was 1.756 which is close to 2.0 hence there was no autocorrelation in the model.

Table 4.38: Autocorrelation Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.784[a]	.615	.603	.42848	**1.756**

4.7.5 Test for Heteroscedasticity

A test for heteroscedasticity was carried out. The regression model assumes that there is no heteroscedasticity in the dataset. This means that the residuals in all the variables have error. The regression model assumes that all the residuals (error term) are drawn

from a population with constant variance. This was tested using a scatter plot. A scatter in the absence of heteroscedasticity is cone-shaped.

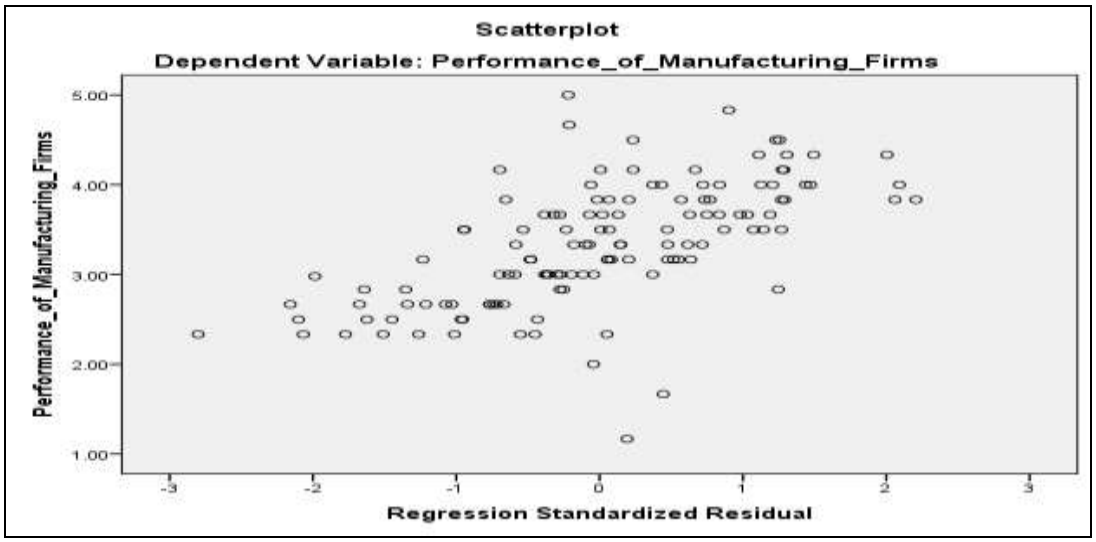

Figure 4.9: Test for Heteroscedasticity

4.8 Correlation Analysis

Correlation analysis was used to determine both the significance and degree of association of the variables and predict the level of variation in the dependent variable caused by the independent variables. Table 4.39 shows the findings. The results indicated that the associations between each of the independent variables and the dependent variable were all significant at the 95% confidence level.

The correlation analysis to determine the association between Relational Behaviour at the selected performance of manufacturing firms in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there was a positive and significant relationship (R = 0.439) between Relational Behaviour and performance of manufacturing firms in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level (P = 0.000; <0.05).

The correlation analysis to determine the association between Supplier Relationship Management and performance of manufacturing firms in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there was a positive and significant relationship (r=.399) between Supplier Relationship Management and performance of manufacturing firms in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level (p=0.000<0.05).

The correlation analysis to determine the association between inventory visibility and performance of manufacturing firms in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there was a positive relationship and significant relation as shown by Pearson correlation coefficient of 0.642 between Inventory visibility and performance of manufacturing firms in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level (p=0.000, <0.05).

The correlation analysis to determine the association between process and operations and performance of manufacturing firms in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there was a significant and positive relationship between operations and processes and performance of manufacturing firms in Kenya as shown by a Pearson Correlation coefficient of 0.552. In addition, the researcher found the relationship to be statistically significant at 5% level (p=0.000, <0.05).

The correlation analysis to determine the association between Quality Control and Certifications and performance of manufacturing firms in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there was a significant and positive relationship between Quality Control and Certifications and performance of manufacturing firms in Kenya as shown by a Pearson Correlation coefficient of 0.494. In addition, the researcher found the relationship to be statistically significant at 5% level (p=0.000, <0.05). Hence, it was evident that all the independent

variables could explain the changes in the performance of manufacturing firms in Kenya, on the basis of the correlation analysis.

Table 4.39: Summary of Pearson's Correlations

		Performance	Relational Behavior	SRM	Inventory visibility	Operations and Processes	Quality Control and Certifications
Performance	Pearson Correlation	1					
Relational Behavior	Pearson Correlation	.439	1				
	Sig. (2-tailed)	.000					
SRM	Pearson Correlation	.399	1				
	Sig. (2-tailed)	.000					
Inventory visibility	Pearson Correlation	.642	.774	1			
	Sig. (2-tailed)	.000	.000				
Operations and Processes	Pearson Correlation	.552	.507	.409	1		
Operations and Processes	Sig. (2-tailed)	.000	.000	.000			
Quality Control and Certifications	Pearson Correlation	.494	.586	.814	.449	1	1
	Sig. (2-tailed)	.000	.000	.00	.000		

4.9 Hypotheses Testing

Inferential analysis is the statistical analysis of the data in a study with the main aim of giving the statistical relationship between variables in a study. In this study, inferential analysis was carried out using a regression model through SPSS to establish the

statistical relationship between supply chain alignment and performance of manufacturing firms in Kenya. The main aspects covered herein include the ANOVA tests, the model summary and the regression coefficients. The inferential results are as herein presented.

4.9.1 Relational Behavior and Performance of Manufacturing Firms

H_{O1}: *There is no significant relationship between relational behavior and performance of manufacturing firms in Kenya*

The first objective of the study was to establish the influence of relational behaviour on the performance of manufacturing firms in Kenya. The linear regression model was carried out to reveal the relationship between the two variables and the findings are as herein presented. As the model summary in Table 4.40 reveal, the R Square (R^2) for the model was 0.193. This implies that relational behaviour influences up to 19.3% variation in the performance of manufacturing firms in Kenya. This confirms that relational behaviour has an influence on the performance of manufacturing firms in Kenya.

The Analysis of Variance (ANOVA) result are as shown in Table 4.40. As the findings indicate, the F-Statistics for the model was 29.891 at a significant level of 0.000<0.05. This implies that there is a significant influence of relational behaviour on the performance of manufacturing firms in Kenya. Zachmann (2012) stated that when relational behaviour is well though and directed towards meeting the customer needs, it significantly influences the organizational performance by giving it a modern approach to new ways of supply chain and improving the existing products and supply chain channels.

The regression coefficients results as shown in Table 4.40 revealed that the Beta (ß) coefficient for relational behaviour was 0.518 which implies that a unit change in relational behaviour would lead to an increase in performance of manufacturing firms by up to 51.8%. The P-value for Relational behaviour was 0.000 which is less than the

standard P-value of 0.05. This implies that there is a significant and positive relationship between relational behaviour and manufacturing firms. On this merit, we therefore reject the null hypothesis that there is no significant influence of relational behaviour on the performance of manufacturing firms in Kenya. The findings concur with those by Christiaanse (2015) who indicated that relational behaviour in supply chain helps to bring the employees, the suppliers and the customers closer to thus they are able to work for continued success of the organization.

$$\mathbf{Y = ß_0 + ß_1X_1 + \varepsilon}$$

Table 4.40: Regression Model Results on the Relationship between Relational Behaviour and Firm Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.439[a]	.193	.187	.61302

a. Predictors: (Constant), Relational Behaviour

Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.233	1	11.233	29.891	.000[b]
	Residual	46.975	125	.376		
	Total	58.208	126			

a. Dependent Variable: Performance of Manufacturing Firms
b. Predictors: (Constant), Relational Behaviour

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.515	.337		4.500	.000
	Relational Behaviour	.518	.095	.439	5.467	.000

a. Dependent Variable: Performance of Manufacturing Firms

4.9.2 Supplier Relationship Management and Performance of Manufacturing Firms

H_{O2}: *Supplier relationship management has no significant relationship with performance of manufacturing firms in Kenya*

The second objective of the study was to establish the relationship between supplier relationship management and performance of manufacturing firms in Kenya. The model summary (R, R^2, and adjusted R^2), ANOVA and regression coefficients were the main approaches used to test for the relationship between supplier relationship management and performance of manufacturing firms. The model summary results are as shown in Table 4.41. As the results reveal, the R^2 for the model was 0.159. This implies that up to 15.9% variation in the performance of manufacturing firms in Kenya is as a result of supplier relationship management.

The ANOVA test results are shown in Table 4.41. As the findings portray, the F-Statistics was 23.701 at a significance level of 0.000. This is an implication that supplier relationship management significantly influences the performance of manufacturing firms since the P-value (0.000) is lower than the standard p-value of 0.05.

The regression coefficient results on the other hand are as shown in Table 4.41. As the findings portray, the constant value is 4.299 implying that if supplier relationship management and other factors are held constant, the performance of manufacturing firms in Kenya would improve by 4.299. On the other hand, the Beta coefficient for supplier relationship management is 0.080 while the standardized coefficient if 0.343. The findings imply that a unit increase in supplier relationship management would lead up to 34.3% increase in the performance of manufacturing firms in Kenya. The P-value for the variable is 0.002 which is less than 0.05. This is to imply that there is a significant influence of supplier relationship management on the performance of manufacturing firms in Kenya. The findings therefore support the rejection of the null hypothesis that there is no significant and positive influence of supplier relationship

management on the performance of manufacturing firms in Kenya. The findings compare with those by Dubey *et al.* (2018) who indicated that supplier relationship management is an essential process in supply chain alignment that ensures suppliers are brought on board to stir performance.

Table 4.41: Regression Model Results on the Relationship between Supplier Relationship Management and Firm Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.399[a]	.159	.153	.62565

a. Predictors: (Constant), Supplier Relationship Management

ANOVA results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.278	1	9.278	23.701	.000[b]
	Residual	48.930	125	.391		
	Total	58.208	126			

a. Dependent Variable: Performance of Manufacturing Firms
b. Predictors: (Constant), Supplier Relationship Management

Regression Coefficients

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	2.240	.231		9.699	.000
	Supplier Relationship Management	.343	.071	.399	4.868	.000

a. Dependent Variable: Performance of Manufacturing Firms

4.9.3 Inventory visibility and Performance of Manufacturing Firms

H_{O3}: *Inventory visibility has no significant relationship with performance of manufacturing firms in Kenya*

The third objective of the study was to examine the relationship between inventory visibility and performance of manufacturing firms in Kenya. The linear regression model analysis was carried out to establish the relationship between inventory visibility and performance of manufacturing firms in Kenya and the output included the model summary, the ANOVA results and the regression coefficients. The model summary results are as shown in Table 4.42.

$Y = \alpha + \beta_3 X_3 + \varepsilon$

As the findings portray, the R^2 for the variable was 0.412. This implies that inventory visibility influences up to 41.2% variation of the performance of manufacturing firms in Kenya.

The ANOVA results are as shown in Table 4.42. As the results portray, the F-statistics for the model was 87.594 at a significant level of 0.000<0.05. This implies that inventory visibility significantly influences the performance of manufacturing firms in Kenya.

The regression coefficients on the other hand are as shown in Table 4.42.

$Y = 1.089 + 0.657X_3$

As the results portray, the Beta coefficient for inventory visibility was 0.657. This implies that a unit change in inventory visibility would lead up to 65.7% increase in the performance of manufacturing firms in Kenya. The p-value was 0.000 which is less than the standard p-value of 0.05. This means that there is a significant influence of inventory visibility on the performance of manufacturing firms hence the rejection of the null hypothesis that there is not significant influence of inventory visibility on the performance of manufacturing firms in Kenya. The findings are in line with those by Lambert and Croxton (2015) who indicate that inventory visibility is critical in enabling the company to establish how much inventory it owns, thus they are able to strategies for their management of the inventory for enhanced performance.

Table 4.42: Regression Model Results on the Relationship between Inventory visibility and Firm Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.642[a]	.412	.407	.52326

a. Predictors: (Constant), Inventory visibility

ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.983	1	23.983	87.594	.000[b]
	Residual	34.225	125	.274		
	Total	58.208	126			

a. Dependent Variable: Performance of Manufacturing Firms
b. Predictors: (Constant), Inventory visibility

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.089	.244		4.459	.000
	Inventory visibility	.657	.070	.642	9.359	.000

a. Dependent Variable: Performance of Manufacturing Firms

4.9.4 Operations and Processes and Performance of Manufacturing Firms

H_{O4}: *There is no significant relationship between operations and processes and performance of manufacturing firms in Kenya*

The fourth objective of the study was to establish the relationship between operations and processes and performance of manufacturing in Kenya. The linear regression model analysis results are as herein shown in form of model summary, ANOVA test and regression coefficients. The model summary shown in Table 4.43 revealed that the R^2

for the model was 0.305. This is to imply that 30.5% of the variations in performance of manufacturing firms in Kenya are as a result of operations and processes.

The ANOVA results are as shown in Table 4.43. As the findings reveal, the F-statistic for the model is 54.817 at a significance level of 0.000<0.05. This is an implication that operations and processes significantly influence the variations in the performance of manufacturing firms in Kenya.

The regression coefficients as shown in Table 4.43 on the other hand revealed that the Beta coefficient for operations and processes was 0.577. This implies that a unit change in operations and processes would lead up to 57.7% increase in the performance of manufacturing firms in Kenya. The p-value for the variable was 0.000 which is less than the standard P-value of 0.05. This is to mean that operations and processes had a significant influence on the performance of manufacturing firms in Kenya. To this end, we therefore, reject the null hypothesis that there is no significant relationship between operations and processes and performance of manufacturing firms in Kenya. The results confirm the argument by Yasin *et al.* (2015).that aligning the operations and processes of supply chain network enables the manufacturing entity to have a more effective way of running their internal processes. Vonderembse and Dismukes (2015) alludes that enhancing the operations and processes of a firm is the main process that a company can utilize its capacity fullest for better performance.

Table 4.43: Regression Model Results on the Relationship between Operations and Processes and Firm Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.552[a]	.305	.299	.56895

a. Predictors: (Constant), Operations and Processes

ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.745	1	17.745	54.817	.000[b]
	Residual	40.463	125	.324		
	Total	58.208	126			

a. Dependent Variable: Performance of Manufacturing Firms
b. Predictors: (Constant), Operations and Processes

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.492	.254		5.885	.000
	Operations and Processes	.577	.078	.552	7.404	.000

a. Dependent Variable: Performance of Manufacturing Firms

4.9.5 Overall Regression Model

The study sought to carry out a multiple regression model without the moderating variable (quality control and certification). The model was of the form;

$$Y= \beta o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

The multiple regression model results as shown below covers the model summary, the ANOVA test results and the regression coefficients for the four independent variables. The model summary is as shown in Table 4.44. As the results portray, the R-square for

the model was 0.615. This implies that 61.5% of the variation in performance of the manufacturing companies is as a result of the combined effect of operations and processes, relational behaviour, supplier relationship management, inventory visibility.

The ANOVA results as shown in Table 4.44 revealed that the F-statistics was 48.760 at a significance level of 0.000. This implies that the aspects of supply chain alignment (operations and processes, relational behaviour, supplier relationship management, inventory visibility) influences the performance of manufacturing firms in Kenya. The results further reveal that the model could statistically significantly predict the relationship between supply chain alignment and the performance of manufacturing firms in Kenya.

The regression coefficients for the model are a shown in Table 4.44. The findings revealed that relational behaviour had a regression coefficient of 0.263 an indication that a unit change in relational behaviour would influence performance of the manufacturing firms in Kenya by up to 26.3%. On supplier relationship management, it was established that the Beta coefficient was 0.212 which implies that a unit change in supplier relationship management would influence performance by up to 21.2%. Inventory visibility had a Beta coefficient of 0.491 which indicates that a unit change in inventory visibility could influence up to 49.1% of performance of manufacturing firms in Kenya. Operations and processes on the other hand had a Beta coefficient of 0.210 which implies that a unit change in operations and processes would influence performance of the manufacturing firms in Kenya by up to 21.0%. The findings further revealed that all variables had P-values less than 0.05 an indication that they significantly influenced the performance of manufacturing firms in Kenya. Aligning supply chain processes is a critical process that manufacturing firms enhances their ability to compete and gain more performance (Baier et al., 2012).

Table 4.44: Multiple Regression Model without the Moderator

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.784[a]	.615	.603	.42848

a. Predictors: (Constant), Operations and Processes, Relational Behaviour, Supplier Relationship Management, Inventory visibility

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.809	4	8.952	48.760	.000[b]
	Residual	22.399	122	.184		
	Total	58.208	126			

a. Dependent Variable: Performance of Manufacturing Firms

b. Predictors: (Constant), Operations and Processes, Relational Behaviour, Supplier Relationship Management, Inventory visibility

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.609	.300		2.033	.044
	Relational Behaviour	.263	.070	.223	3.753	.000
	Supplier Relationship Management	.212	.052	.247	4.051	.000
	Inventory visibility	.491	.064	.480	7.625	.000
	Operations and Processes	.210	.070	.201	2.996	.003

a. Dependent Variable: Performance of Manufacturing Firms

4.9.6 Moderating Effect of Quality Control and Certification

H_{O5}: *Quality control and certification has no significant moderating effect on the relationship between supply chain alignment and performance of manufacturing firms in Kenya*

The results indicated that the inclusion of the interaction term (quality control) resulted into an R^2 change from 0.615 to 0.632, showing presence of significant moderating effect of quality control. This implied that the moderating effect of availability of quality

control gained 63.2% variance in the performance of manufacturing firms Kenya, higher than the variance by supply chain alignment.

This regression model one has a goodness fit indicated by the significant F-statistic (F-value = 48.760, $p<0.05$). Upon introduction of the interaction term presented as model 3, the model is still significant (F-value = 22.313, $p<0.05$) inferring that quality control significantly moderates the relationship between supply chain alignment and the performance of manufacturing firms in Kenya.

The regression coefficients for the moderated model are as shown in Table 4.45. The results revealed that the Beta coefficient for the interaction effect between relational behaviour and quality control and certification was 0.129 at a significant level of 0.001. This implies that quality control and certification when interacted with relational behaviour had a positive and significant effect on the performance of the manufacturing firms. We therefore reject the null hypothesis and conclude there is a significant moderating effect of quality control and certification on the relationship between relational behaviour and performance of manufacturing firms. Supplier relationship management was found to be significant ($p= 0.002<0.05$, $\beta = 0.104$). The findings imply that quality control and certification significantly moderates the relationship between supplier relationship management and performance of the manufacturing firms in Kenya.

The findings imply that quality control and certification moderates the relationship between supply chain alignment aspects and performance of manufacturing firms in Kenya. The study therefore rejects the null hypothesis that quality control and certification has no moderating effect on the relationship between supply chain integration and performance of the manufacturing firms in Kenya. Through quality control and certifications, it is expected that the manufacturing firms will stand a better chance to strengthen their alignment of supply chain and ensure that they are able to be more productive and meet customer needs. This will increasingly enhance the

performance of these firms, thus the need for integration of quality control and certifications in their efforts to align their supply chain processes.

Table 4.45: Moderating effect of Quality Control and Certifications

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.784[a]	.615	.603	.42848
2	.792[b]	.627	.612	.42338
3	.795[c]	.632	.604	.42796

a. Predictors: (Constant), Operations and Processes, Relational Behaviour, Supplier Relationship Management, Inventory visibility
b. Predictors: (Constant), Operations and Processes, Relational Behaviour, Supplier Relationship Management, Inventory visibility, Quality Control and Certification
c. Predictors: (Constant), Operations and Processes*Moderator, Inventory visibility*Moderator, Supplier Relationship Management*Moderator, Relational Behaviour*Quality Control and Certification
d. Dependent Variable: Performance of Manufacturing Firms

ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.809	4	8.952	48.760	.000[b]
	Residual	22.399	122	.184		
	Total	58.208	126			
2	Regression	36.519	5	7.304	40.746	.000[c]
	Residual	21.689	121	.179		
	Total	58.208	126			
3	Regression	26.143	4	6.536	24.868	.000[b]
	Residual	32.065	122	.263		
	Total	58.208	126			

a. Dependent Variable: Performance of Manufacturing Firms
b. Predictors: (Constant), Operations and Processes, Relational Behaviour, Supplier Relationship Management, Inventory visibility
c. Predictors: (Constant), Operations and Processes, Relational Behaviour, Supplier Relationship Management, Inventory visibility, Quality Control and Certification
d. Predictors: (Constant), Operations and Processes*Moderator, Inventory visibility*Moderator, Supplier Relationship Management*Moderator, Relational Behaviour*Quality Control and Certification

Table 4.46: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.609	.300		2.033	.044
	Relational Behaviour	.263	.070	.223	3.753	.000
	Supplier Relationship Management	.212	.052	.247	4.051	.000
	Inventory visibility	.491	.064	.480	7.625	.000
	Operations and Processes	.210	.070	.201	2.996	.003
2	(Constant)	.583	.296		1.966	.052
	Relational Behaviour	.201	.076	.171	2.656	.009
	Supplier Relationship Management	.177	.055	.205	3.232	.002
	Inventory visibility	.448	.067	.438	6.663	.000
	Operations and Processes	.242	.071	.231	3.399	.001
	Quality Control and Certification	.116	.058	.136	1.990	.049
3	(Constant)	2.046	.144		14.196	.000
	Relational Behaviour*Moderator	.129	.022	0.167	5.8609	.001
	Supplier Relationship Management* Moderator	.104	.019	.025	5.473	.002
	Inventory visibility*Moderator	.064	.024	.362	2.709	.008
	Operations and Processes*Moderator	.093	.028	.458	3.271	.001

a. Dependent Variable: Performance of Manufacturing Firms

4.9.7 Optimal Model

The purpose of an optimal model is to show the direction that a study takes and the finale decision made by the researcher out of an analysis of a regression model particularly after running the moderating effect analysis. In this study, while the moderating effect in most all the variables had insignificant P-values, the quality control and certification is retained as a significant moderator. While the R^2 for the overall model before the moderator was 0.615, after the introduction of quality control and certification as the moderator, the R^2 increased to 0.632. This is an indication that through the moderation effect of quality control and certification, the variation of organizational performance as a result of supply chain alignment aspects is increased

from 61.5% to 63.2%. Moreover, the P-value for the ANOVA is after the moderation is still significant at 0.000 an indication that the model is statistically significant.

The study first had an unmoderated regression model which was structured as shown:

$$\mathbf{Y= \beta o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon}$$

From the regression coefficients on Table 4.46, the following model is obtained:

$$\mathbf{Y= 0.609 + 0.263 X_1 + 0.212 X_2 + 0.491 X_3 + 0.210 X_4}$$

The second model was run by introducing the moderator as an independent variable so as to establish the direct influence of quality control and certification on performance of large manufacturing firms.

$$\mathbf{Y= \beta o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + Z + \varepsilon}$$

From the regression coefficients on Table 4.46, the following model was obtained. The model shows that quality control and certifications have a direct influence on performance of large manufacturing firms in Kenya.

$$\mathbf{Y= 0.583 + 0.201 X_1 + 0.177 X_2 + 0.448 X_3 + 0.242 X_4 + 0.116 Z + \varepsilon}$$

With the introduction of the moderator (quality control and certification), the following model was drawn:

$$\mathbf{Y= \beta o + \beta_1 X_1 * Z + \beta_2 X_2 * Z + \beta_3 X_3 * Z + \beta_4 X_4 * Z + \varepsilon}$$

The regression coefficients after the moderator are as shown in Table 4.46. From the coefficients, the following model is derived:

$$\mathbf{Y= 2.046 + 0.129 X_1 * Z + 0.104 X_2 * Z + 0.064 X_3 * Z + 0.093 X_4 * Z + \varepsilon}$$

Based on the models drawn above, it can be deduced that quality control and certification has a significant moderating effect on the relationship between supply chain alignment aspects and performance of manufacturing firms in Kenya. From the results, an optimal model is derived, where the model with the moderator is adopted as the final model for the study. The revised conceptual framework as shown in Figure 4.10 is drawn to show the flow and relationship of the variables as derived from the optimal model.

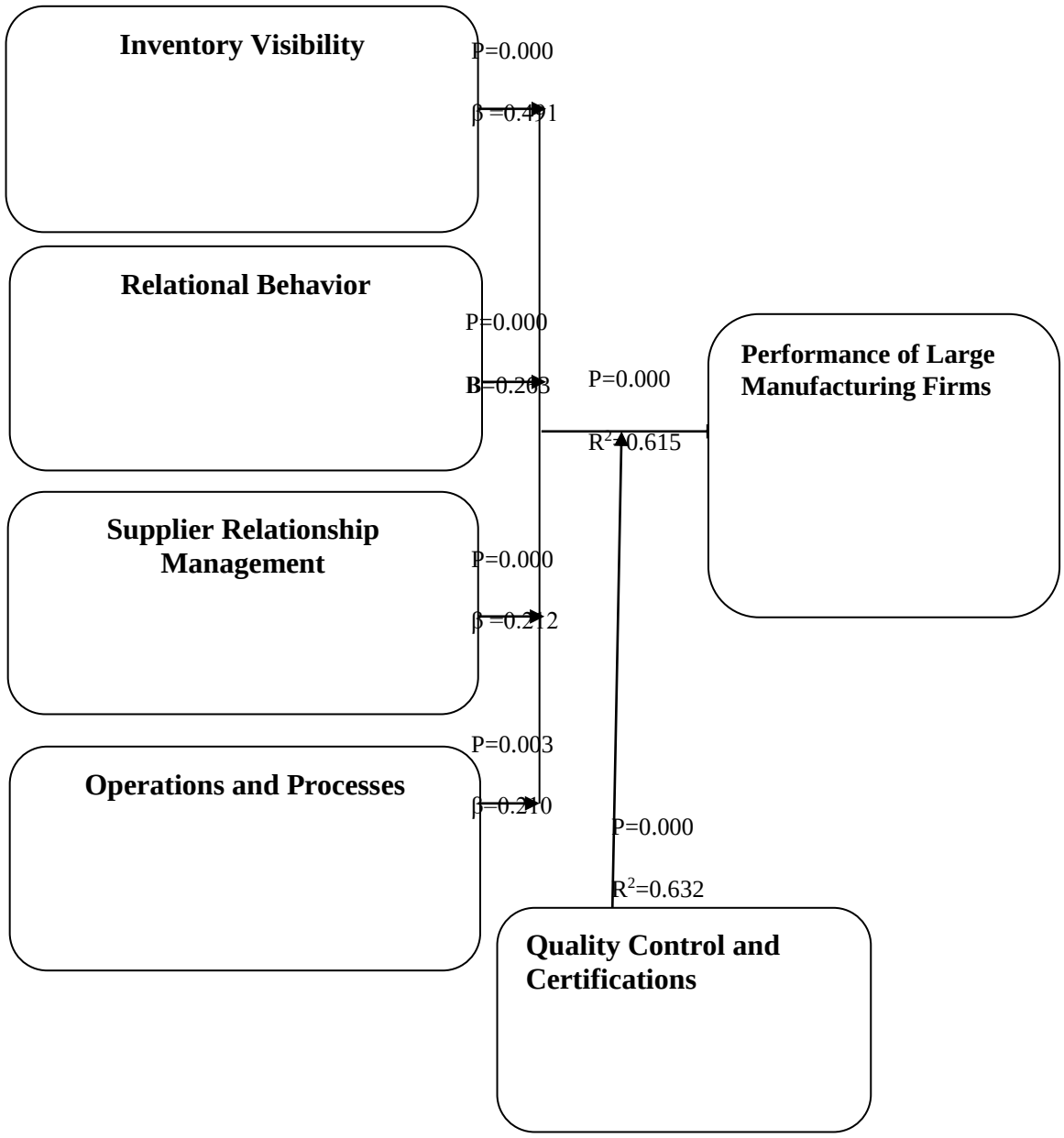

Figure 4.10: Revised Conceptual Framework

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter outlines the summary of the findings of the study on the relationship between supply chain alignment and performance of manufacturing firms in Kenya. The chapter also highlights the conclusion and recommendations. These are systematically presented as per the study variables which are relational behaviour, supplier relationship management, inventory visibility and the operations and processes. The suggestions of areas for further studies are also captured in the chapter.

5.2 Summary of Findings

5.2.1 Relational Behaviour

The first objective of the study was to determine the relationship between relational behaviour and performance of manufacturing firms in Kenya. The findings of the study revealed that majority of the firms had not effectively embraced stakeholder interactions. Having stakeholder interactions improves performance and lack of stakeholder interactions decreased performance. The study findings also indicated that the nature of the logistical flexibility in majority of firms is not proficient. Proficient logistical flexibility improves performance while inefficient logistical flexibility decreases performance. The findings further revealed that majority of firms had not adopted responsiveness to customer feedback which was found to improve performance.

The study findings further revealed that stakeholder interactions had a positive and significant relationship with the odds of increased sales revenue. The odds of observing increased sales revenue were higher for those firms with stakeholder interactions in relational behaviour as compared to those without. This implies that stakeholder interactions result to high profitability.

The study findings revealed that logistical flexibility in enhancing the effectiveness of supply chain processes for enhanced organizational performance. Through responsiveness to customer feedback, most organizations were able to have stronger customer base and had more customers satisfied with their products. This was integral in enhanced profitability of the manufacturing firms. Stakeholder interactions were found to positively and significantly influence firm performance. The odds of observing a high profitability was higher for those firms which had stakeholder interactions as compared to those firms which do not have stakeholder interactions. This implies that stakeholder interactions result to high profitability.

The results also revealed that logistical flexibility was positively and significantly related to profitability. The odds of observing high profitability was higher for those firms which had embraced a proficient logistical flexibility compared to those with an inefficient logistical flexibility. This implies that a proficient logistical flexibility results to high profitability. The results further reveal that responsiveness to customer feedback had a positive and significant relationship with customer satisfaction. The odds of observing high profitability was higher for firms which have a proficient responsiveness to customer feedback compared to firms do not. This implies that responsiveness to customer feedback results to high customer satisfaction.

The study further established that through flexible logistics, the firms spent lesser time in meeting customer orders thus enhancing customer satisfaction. The results also revealed that stakeholder interactions were positively and significantly related to customer satisfaction. The odds of observing a lesser satisfaction of customers was higher for those firms with high stakeholder interactions as compared to those firms without stakeholder interactions implying that proficient stakeholder interactions results to a better customer satisfaction.

Further, the results also showed that responsiveness to customer feedback was positively and significantly related to customer satisfaction. The odds of observing a lesser customer satisfaction was higher for those firms with proficient responsiveness to

customer feedback as compared to those firms without. This implies that better responsiveness to customer feedback results to enhanced customer satisfaction. The relationship between relational behaviour and performance was significant at 5% level of significance. The p-value was 0.000 which indicated that the null hypothesis failed to be accepted at 5% level of significance hence relational behaviour has significant influence on performance of manufacturing firms in Kenya.

5.2.2 Supplier Relationship Management

The second objective of the study was to establish the relationship between supplier relationship management and performance of manufacturing firms in Kenya. The findings of the study revealed that majority of the firms had not effectively embraced early supplier involvement, good supplier development in their firms and also they had not established strategic collaborations. Having early supplier involvement, good supplier development in their firms and also their strategic collaborations improves performance. The findings of the study also revealed that early supplier involvement was positively and significantly related to increase sales revenue. The odds of observing increased sales revenue were higher for those firms with early supplier involvement as compared to those without early supplier involvement. This implies that having early supplier involvement results to high sales revenue.

The results also revealed that supplier development had a positive and significant relationship with the odds of increased sales revenue. The odds of observing increased sales revenue were higher for firms with good supplier development compared to those with low adoption. This implies that good supplier developments result to high sales revenue. The results further indicated that strategic collaborations had a positive and significant relationship with the odds of increased sales revenue. The odds of observing increased sales revenue were higher for those firms where strategic collaborations existed. This implies that strategic collaborations result to high customer satisfaction.

The results further revealed that early supplier involvement was positively and significantly related to profitability. The odds of observing high profitability was higher for those firms with good early supplier involvement system as compared to those firms which did not have any. This implies that having early supplier involvement results to high profitability. The results also revealed that supplier development had a positive and significant relationship with profitability. The odds of observing high profitability was higher for those firms with good supplier developments compared to those with low adoption. This implies that good supplier development results to high profitability. The results also revealed that strategic collaborations had a positive and significant relationship with the odds of high profitability. The odds of observing high profitability were higher for those firms where strategic collaborations existed. This implies that strategic collaborations result to high profitability.

On the relationship between supplier relationship management and customer satisfaction the findings of the study revealed that early supplier involvement was positively and significantly related to customer satisfaction. The odds of observing a customer satisfaction was higher for those firms with better early supplier involvement as compared to those firms who did not. This implies that having early supplier involvement result to customer satisfaction. The findings of the study revealed that supplier development was positively and significantly related to customer satisfaction. The odds of observing a customer satisfaction was higher for those firms with better supplier development as compared to those firms who did not. This implies that having good supplier development result to customer satisfaction.

Further, the results reveal that strategic collaborations had a positive and significant relationship with the odds of customer satisfaction. The odds of observing customer satisfaction were higher for those firms where strategic collaborations were present. This implies that strategic collaborations result to customer satisfaction. The relationship between supplier relationship management and performance was significant at 5% level of significance. The p-value was 0.000 which indicated that the null hypothesis failed to

be accepted at 5% level of significance hence supplier relationship management has significant influence on performance of manufacturing firms in Kenya.

5.2.3 Inventory Visibility

The third objective of the study was to determine the relationship inventory visibility on performance of manufacturing firms in Kenya. The findings of the study revealed that majority of the firms had not effectively posited inventory visibility through, embracing the analysis of acquisition related costs, maintenance related costs, and majority had no analysis of salvage related costs. On the relationship between inventory visibility and increased sales revenue, the findings of the study revealed that acquisition related costs are positively and significantly related to increase sales revenue. The odds of observing increased sales revenue were higher for firms which checked on acquisition related costs compared to those who did not. This implies that checking on acquisition related costs results to increased sales revenue.

The findings of the study also revealed that maintenance related costs are positively and significantly related to increase sales revenue. The odds of observing increased sales revenue were higher for firms which checked on maintenance related costs compared to those who did not. This implies that checking on maintenance related costs result to increased sales revenue. The findings of the study also revealed that salvage related costs is positively and significantly related to increase sales revenue. The odds of observing increased sales revenue were higher for firms which checked on salvage related costs compared to those who did not. This implies that checking on salvage related costs results to increased sales revenue.

Further results indicated that acquisition related costs were positively and significantly related to profitability. The odds of observing high profitability was higher for firms which checked on acquisition related costs compared to those that did not. This implies that checking on acquisition related costs results to increased firm profitability.

The results also show that maintenance related costs and profitability were positively and significantly related. The odds of observing high profitability were higher for firms which checked on maintenance related costs compared to those that did not. The results further revealed that salvage related costs and profitability had a positive and significant relationship. The odds of observing high profitability was higher for those firms which checked salvage related costs. This implies that checking salvage related costs results to enhanced profitability.

The findings of the study further revealed that acquisition related costs are positively and significantly related to customer satisfaction. The odds of observing a customer satisfaction was higher for firms which checked on acquisition related costs compared to those who did not. This implies that checking on acquisition related costs results to a customer satisfaction. The results also reveal that checking maintenance related costs had a positive and significant relationship with customer satisfaction. In addition, the results also show that checking salvage related costs and customer satisfaction were positively and significantly related. The relationship between inventory visibility and performance was significant at 5% level of significance. The p-value was 0.000 which indicated that the null hypothesis failed to be accepted at 5% level of significance hence inventory visibility have a significant influence on performance of manufacturing firms in Kenya.

5.2.4 Operations and Processes

The fourth objective of the study was to assess the relationship between operations and processes and performance of manufacturing firms in Kenya. The findings of the study revealed that majority of the manufacturing firms in Kenya had no avid scheduling and capacity planning, optimum loading and routing, dispatch and expediting systems. The findings also indicated that having avid scheduling and capacity planning, optimum loading and routing, dispatch and expediting systems improve performance.

The results further indicated that the relationship between avid scheduling and capacity planning and increased sales revenue is positive. Further, optimum loading and routing are significantly related to increase sales revenue. The odds of observing increased sales revenue were higher for those firms with optimum loading and routing as compared to those firms without. On the other hand, the odds of observing increased sales revenue were higher for those firms with dispatch and expediting systems as compared to those firms without. This implies that having dispatch and expediting systems leads to increased sales revenue.

On the relationship between avid scheduling and capacity planning and profitability, the study findings indicated that the relationship between optimum loading and routing and profitability is positive. The results revealed that dispatch and expediting systems is positively and significantly related to profitability. The odds of observing high profitability were higher for those firms whose leaders have dispatch and expediting systems as compared to those firms without. This implies that having dispatch and expediting systems leads to a high profitability. The findings further revealed that avid scheduling and capacity planning, optimum loading and routing, dispatch and expediting systems are positively related to customer satisfaction. The relationship between avid scheduling and capacity planning and customer satisfaction is significant at 5% level of significance. The odds of observing a customer satisfaction were higher for those firms with avid scheduling and capacity planning compared to those firms without avid scheduling and capacity planning.

The results also revealed that the odds of observing a customer satisfaction were higher for those firms optimum loading and routing compared to those firms who don't. This implies that having optimum loading and routing leads to a customer satisfaction. The results also revealed that the odds of observing a customer satisfaction were higher for those firms with dispatch and expediting systems compared to those firms who don't. This implies that having dispatch and expediting systems leads to a customer satisfaction. The relationship between operations and processes and performance of manufacturing firms in Kenya was significant at 5% level of significance implying that

operations and processes has significant influence on the performance of manufacturing firms in Kenya.

5.2.5 Quality Control and Certifications

The fifth objective of the study was to explore the moderating effect of quality control and certifications on the relationship between supply chain alignment and performance of manufacturing firms in Kenya. The findings of the study revealed that majority of the manufacturing firms have effective TQM, have six sigma and have ISO certification. The findings also revealed that having effective TQM, six sigma and have ISO certification improves performance. On the relationship between TQM and increased sales revenue, the study findings indicated that TQM is positively and significantly related to increased sales revenue. The odds of observing reduction were higher for those firms which have TQM procedures as compared to those firms which do not. This implies that TQM leads to increased sales revenue. On the relationship between six sigma and increased sales revenue, the study findings indicated that six sigma is positively and significantly related to increased sales revenue. The odds of observing increased sales revenue were higher for those firms which have six sigma as compared to those firms which do not. This implies that six sigma leads to increased sales revenue.

On the relationship between ISO certification and increased sales revenue, the study findings indicated that ISO certification is positively and significantly related to increased sales revenue. The odds of observing increased sales revenue were higher for those firms which have ISO certification as compared to those firms which do not. This implies that ISO certification leads to increased sales revenue.

The findings also indicated that effective TQM are positively and significantly related to productivity. Similarly, six sigma is positively and significantly related to productivity. The odds of observing high productivity were higher for those firms that have ISO certification as compared to those firms which don’t. The results also revealed that the

odds of observing high productivity were higher for those firms with effective TQM as compared to those firms that do not.

Furthermore, the findings of the study revealed that effective TQM are positively and significantly related to customer satisfaction. Similarly, six sigma are positively and significantly related to customer satisfaction. The odds of observing a customer satisfaction were higher for those firms with effective six sigma as compared to those firms without. The results also revealed that the odds of observing a customer satisfaction were higher for those firms which have ISO certification as compared to those firms which do not. This implies that ISO certification improves customer satisfaction.

The findings further indicated that the interaction between the independent variables and moderating variable was statistically significant and implying that quality control and certifications does moderate the influence of supply chain alignment on firm's performance. The results for two-way interaction of the moderator (quality control and certifications) and performance of manufacturing firms indicated that on the high as well as low quality control and certifications, there was change in the performance of manufacturing firms revealing that moderation was supported.

The results for joint influence of supply chain alignment indicated that supply chain alignment are positively associated with performance of manufacturing firms. The results further indicated that supply chain alignment explains 61.3% of the changes in performance of manufacturing firms in Kenya. The regression results also revealed that the relationship between supply chain alignment and performance of manufacturing firms is positive and significant implying that an improvement in supply chain alignment leads to an improvement in performance of manufacturing firms in Kenya. The findings indicated that quality control and certifications has a moderating effect on the relationship between supply chain alignment and performance**.**

5.3 Conclusion of the Study

Based on the study findings, the study concluded that relational behaviour influences performance. Relational behaviour has significant relationship with performance of manufacturing firms in Kenya. The sub-constructs of relational behaviour that is stakeholder interactions, logistical flexibility, responsiveness to customer feedback influences performance positively.

Another conclusion made by the study is that supplier relationship management has significant relationship with performance of manufacturing firms in Kenya. The sub-constructs of supplier relationship management that is early supplier involvement, supplier development and strategic collaborations influence performance positively.

Supply chain alignment through inventory visibility has a significant influence on performance of the manufacturing industry. Through Continued focus on inventory tracking, inventory stocking levels and increased focus on inventory maintaining costs, the firms are likely to enhance their performance. The study also concluded that inventory visibility has a significant relationship with performance of manufacturing firms in Kenya. The sub-constructs of inventory visibility namely acquisition related costs, maintenance related costs, salvage related costs significantly influenced the performance of manufacturing firms in Kenya.

Based on the study findings, the study concluded that operations and processes have a significant relationship with performance of manufacturing firms in Kenya. The sub-constructs of operations and processes that is avid scheduling and capacity planning, optimum loading and routing, dispatch and expediting systems influence performance positively.

The study also concluded that quality control and certifications has a moderating influence on the relationship between supply chain alignment and performance of

manufacturing firms in Kenya. The study also concluded that supply chain alignment are positively associated with performance of manufacturing firms.

5.4 Recommendations of the Study

The study recommendations are in line with the objectives, findings and conclusions of the study.

The study recommended that the management of manufacturing firms in Kenya should put in place relational behaviour strategies as it leads to high performance. The firms should ensure they have stakeholder interactions, responsiveness to customer feedback and logistical flexibility in the companies. It is the duty of managers to spearhead stakeholder interactions, and ensure effective responsiveness to customer feedback so as to enhance the satisfaction of customers and other stakeholders. The policy makers have a duty to ensure that there is a set standard on how manufacturers should uphold relational behaviour through setting such policies and guidelines to the manufacturing sector.

It is recommended that manufacturing firms in Kenya should have an improved supplier relationship management as it leads to high performance. The firms should have early supplier involvement, supplier development and strategic collaborations. The study also recommends that future scholars and researchers should aim to test the relationship between supplier relationship management and performance using different sub constructs apart from early supplier involvement, supplier development and strategic collaborations. This can bring rigour and offer platforms for comparison of findings.

The study also recommended that manufacturing firms should invest in acquisition related costs, maintenance related costs, salvage related costs since it influences performance positively. Inventory visibility being the ability to integrate, build and reconfigure internal and external expenses to address rapidly- changing customer needs,

can also take the form of various ways apart from the ones discussed in the current study and hence the future scholars can seek to explore other measures of this factor.

Based on operations and processes, the study recommended that manufacturing firms should put in place strategies to have operations and processes as it has a positive effect on performance. The firms should encourage and put in place measures that promote dispatch and expediting systems, optimum loading and routing as they influence performance positively.

5.5 Recommendations to Policy and Theory

The policy makers hold a major role in determining how key sectors such as the manufacturing sector are run. The regulators and the legislators formulate policies and guidelines that guide on how manufacturing firms should carry out their operations including supply chain processes. It is therefore recommended that the policy makers utilizes key findings as pointed out in this study to come up with policies and legislations that cover the concept of supply chain alignment, as an essential driver to the success of the manufacturing sector in the country. Through the findings, it is possible for the policy makers to streamline the supply chain operations of the manufacturing sector, thus leading to the success of the sector.

The study also brings a new knowledge to the field of supply chain management. The study developed a conceptual framework for underpinning future research work on the influence of supply chain alignment on performance of manufacturing firms in Kenya. The study successfully tested hypothesis and from the findings, the four key aspects of supply chain alignment have been upheld. It therefore implies that in future, supply chain alignment can be adequately addressed in terms of relational behaviour, supplier relationship management, inventory visibility and operations and processes. Practitioners and researchers in the field of supply chain have, therefore, a background to lay their arguments in regard to supply chain alignment, how it can be measured, and

its connection to the wider supply chain management, and its role in promoting firms performance.

The findings of the study can be linked to the partnership theory. In its basic nature, the partnership model depicts the buyer and supplier as partners with a common interest which is customer satisfaction. Partnership is a relationship based on mutual trust, openness, shared risks and rewards that enables an organisation gain competitive advantage leading in the company achieving a performance that's far much greater than the firm would have achieved when operating as single entities. This model requires efficient information exchange between the partners which is a critical element of any partnership.

The theory further states that any partnership is always based on value and present for each other. The solid and long term relationship simply implies continuous improvement of the organization performance. Suppliers must provide better services that are of high quality than his competition at a price reasonable and still achieve goals to remain in business. Partnership model, increases company efficiency through way of cooperative; both parties obtain cost reduction which leads to price reduction and therefore increasing the market share profit margin as well. This leads to a company gaining a competitive edge and efficiency.

The study findings can also be linked to the transaction cost theory. Transaction cost theory tries to explain how companies compete cost-wise and why companies expand or source out activities to the external environment. Transaction cost theory supposes that a company will try to minimize the cost of exchange with the environment and the bureaucratic cost of exchange within the company. This may entail minimizing acquisition related costs.

Transaction cost theory is one of the key motivator of supply chain alignment in any organization. The transaction cost economics focuses on the organization of transactions that occur whenever a good or service is transferred from a provider (seller) to a user

(buyer) across separate interface. The theory sees sellers and buyers as different possible forms of organizing and coordinating economic transactions.

When external transaction costs are higher than the company's internal costs then the company will grow because the company is able to perform its activities more cheaply than if the activities were performed in the market place. This means keeping the maintenance and acquisition related costs at a minimum. Transaction cost arises every time a product or service is being transferred from one stage to another where new sets of capabilities are needed to make the products or services.

5.6 Areas for Further Research

Further studies can be done to establish the influence of supply chain alignment on performance of firms in other sectors other than manufacturing firms in Kenya. A study can also be done to establish other factors that influence performance of manufacturing firms other than supply chain alignment factors. The results indicated that supply chain alignment explains 61.3% of the changes in performance of manufacturing firms in Kenya. This implies that the remaining 38.7% of the change in performance of manufacturing firms is explained by other factors not investigated in the current study. A study can be conducted in future to establish the other factors.

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APPENDICES

Appendix I: Letter of Introduction

TO WHOM IT MAY CONCERN

Dear Sir / Madam,

RE: PhD PROPOSAL FOR BENEDICT KIMWAKI

This is to introduce to you **Mr. Benedict Kimwaki** who is a doctoral candidate at the Jomo Kenyatta University of Agriculture and Technology, School of Human Resource Development. As part of his academic program, he is conducting a study on **'supply chain alignment and performance of manufacturing firms in Kenya'.**

You have been identified as a potential respondent in this research. Please respond to all questions, using your best estimates. Your participation in answering these questions is very much appreciated. Your responses will be completely confidential. If you have any questions or comments about this survey, you may contact Benedict Kimwaki, Tel: 0720983809; email: bekimwaki@gmail.com.

Yours Sincerely,

Benedict Kimwaki

Appendix II: Questionnaire

This questionnaire has been set in relation to the objectives of the study. All the questions relate to influence of supply chain alignment on performance of manufacturing firms in Kenya. Kindly read the questions carefully and answer them as honestly as possible by ticking (✓), rating, specifying or writing the correct answers precisely on the spaces provided.

SECTION 1: RESPONDENT'S INFORMATION

1. For how long has your firm been operating in Kenya?

Below 5 years { } 6 – 10 years { } 11 – 15 years { } 16 – 20 years { } Over 20 years {}

2. .How many products does your firm deal with?

2 and below { } 3 – 5 { } 6 – 10 { } Above 10 [ ]

3. Sector of the organization;

Energy Sector [ ] Chemical and Allied [ ] Food, Beverage & Tobacco [ ]

Plastics & Rubber [ ] Building & Construction [ ] Paper and Printing [ ]

Textile and Garments [ ] Timber Products [ ] Motor Vehicle Assembly [ ]

Metal and Allied [ ] Leather Products & Footwear [ ]

Pharmaceutical & Medical Equipment [ ]

SECTION 2: RELATIONAL BEHAVIOR

9. Please rank the following relational behavior indicators in order of preference (Please Tick 1 for "Least Preferred", 2 for "Moderately Preferred", 3 for "Neutral", 4 for "Preferred" and 5 for "Strongly Preferred").

		1	**2**	**3**	**4**	**5**
a)	Stakeholder interactions					
b)	Logistical flexibility					
c)	Responsiveness to customer feedback					

10. How would you rate the relational behavior system implemented in your organization?

a) Very Effective

b) Effective

c) Somehow Effective

d) Ineffective

11. Please indicate the extent to which you agree or disagree with the following statements (Please Tick 1 for "Strongly Disagree", 2 for "Disagree", 3 for neutral", 4 for "Agree" and 5 for "Strongly Agree").

		1	**2**	**3**	**4**	**5**
a)	The company caries out a frequent stakeholder analysis practice to identify key stakeholders					

b)	The stakeholders in the company are effectively involved in key decision making processes					
c)	There are frequent stakeholder meetings to assess their views on various aspects on the organization					
d)	There are flexible logistics frameworks in our company					
e)	The management has embraced a way of rotating cycles and procedures in our logistics process					
f)	There are follow-ups to ensure the timelines in our logistics process can be adjusted when need be					
g)	There is a customer feedback platform to ensure customers receive feedback effectively					
h)	The customer queries are received and replied to timely					
i)	The company has embraced use of ICT in handling customer feedback and communication					

In your opinion, how effective has been relational behaviour in enhancing the performance of your company …… Please expound …….

……

……..

SECTION 3: SUPPLIER RELATIONSHIP MANAGEMENT

12. Please rank the following supplier relationship management indicators in order of preference (Please Tick 1 for "Least Preferred", 2 for "Moderately Preferred", 3 for "Neutral", 4 for "Preferred" and 5 for "Strongly Preferred").

		1	**2**	**3**	**4**	**5**
a)	Early supplier involvement					
b)	Supplier development					
c)	Strategic collaborations					

13. How would you rate the supplier relationship management system implemented in your organization?

a) Very Effective

b) Effective

c) Somehow Effective

d) Ineffective

14. Please indicate the extent to which you agree or disagree with the following statements. (Please Tick 1 for "Strongly Disagree", 2 for "Disagree", 3 for neutral", 4 for "Agree" and 5 for "Strongly Agree").

		1	**2**	**3**	**4**	**5**
a)	Suppliers in our organization are adequately involved in designing the products based on the customer specifications					
b)	Information is adequately and timely shared with the supervisors regarding the customer needs and specifications early enough before the need arises					

c)	There are frequent meetings with the suppliers to intensify on how our company continues doing business with the suppliers					
d)	There is an active and effective platform for sharing information with the suppliers to enhance continued collaboration and efficient communication					
e)	There proper systems and procedures of dispute resolution with the suppliers for enhanced collaboration					
f)	Our organization frequently collaborates with the suppliers to come up with ways of best serving the clients					
g)	There are frequent engagements with our suppliers to share ideas					
h)	The existing least of suppliers is frequently updated to ensure availability of variety of suppliers at the time of need					
i)	The company has set measures to steer continued strategic collaboration with the suppliers					

In your opinion, has supplier relationship management been effectively upheld to enhance the performance of your company …… Please expound ……

……

……..

SECTION 4: INVENTORY VISIBILITY

15. Please rank the following inventory visibility indicators in order of preference (Please Tick 1 for "Least Preferred", 2 for "Moderately Preferred", 3 for "Neutral", 4 for "Preferred" and 5 for "Strongly Preferred").

		1	**2**	**3**	**4**	**5**
a)	Stocking Levels					

b)	Inventory Maintenance Visibility					
c)	Inventory Tracking					

16. How would you rate the inventory visibility system implemented in your organization?

a) Very Effective

b) Effective

c) Somehow Effective

d) Ineffective

17. Please indicate the extent to which you agree or disagree with the following statements. (Please Tick 1 for "Strongly Disagree", 2 for "Disagree", 3 for neutral", 4 for "Agree" and 5 for "Strongly Agree").

		1	**2**	**3**	**4**	**5**
a)	Our organization tracks its inventory to ensure it has only the onventory required in given time					
b)	The company monitors its inventory stocking levels and costs to enhance the performance					
c)	Advance notices on inventories are given to enhance the performance of manufacturing firms in Kenya					
d)	Our organization has a framework for tracking its inventory as a way of controlling production					
e)	That management of the our company's inventory has been upheld as a move to keep the inventory levels standard					

f)	Our orfganization has established stocking levels which guides on production levels					
g)	The stocking costs are minimized to steer cost-saving in our organization					
h)	There is an established standard stocking levels that the company must adhere to					
i)	There are allowed costs of stocking and inventory that should be upheld in our firm					

In your opinion, has inventory visibility been effectively upheld to enhance the performance of your company …… Please expound ……

……

……..

SECTION 5: OPERATIONS AND PROCESSES

18. Please rank the following operations and processes indicators in order of preference (Please Tick 1 for "Least Preferred", 2 for "Moderately Preferred", 3 for "Neutral", 4 for "Preferred" and 5 for "Strongly Preferred").

		1	**2**	**3**	**4**	**5**
a)	Avid scheduling and capacity planning					
b)	Optimum loading and routing					
c)	Dispatch and expediting systems					

19. How would you rate the existing operations and processes implemented in your organization?

a) Very Effective

b) Effective

c) Somehow Effective

d) Ineffective

20. Please indicate the extent to which you agree or disagree with the following statements. (Please Tick 1 for “Strongly Disagree”, 2 for “Disagree”, 3 for neutral”, 4 for “Agree” and 5 for “Strongly Agree”).

		1	**2**	**3**	**4**	**5**
a)	Our company has a plan for scheduling its supply chain activities and operations					
b)	There is a prior plan made to ensure effective flow of operations within the firm					
c)	The adopted schedules and pans are adjustable to emerging issues and constraints					
d)	A proper analysis is carried out to establish the appropriate loading framework					
e)	Managing distribution routes is done effectively for efficiency and timesaving					
f)	The company has embraced strategies that ensure the loading and routing of the supplies is cost efficient					
g)	There is effective communication across the supply chain framework in our company					
h)	Modern technological-based systems have been adopted to ensure effective communication and flow of processes					
i)	Dispatch and expediting systems plays a significant role in improving lead time					

In your opinion, have operations and processes been effectively upheld to enhance the performance of your company …… Please expound ……

……
……..

SECTION 6: QUALITY CONTROL AND CERTIFICATIONS

21. Is your company ISO certified?

Yes [ ] No [ ]

21. **Please rank the following quality control and certifications indicators in order of preference**

(Please Tick 1 for "Least Preferred", 2 for "Moderately Preferred", 3 for "Neutral", 4 for "Preferred" and 5 for "Strongly Preferred").

		1	**2**	**3**	**4**	**5**
a)	TQM					
b)	Six Sigma					
c)	ISO Certification					

22. How would you rate the quality control and certifications implemented in your organization?

a) Very Effective

b) Effective

c) Somehow Effective

d) Ineffective

23. Please indicate the extent to which you agree or disagree with the following statements. (Please Tick 1 for “Strongly Disagree”, 2 for “Disagree”, 3 for neutral”, 4 for “Agree” and 5 for “Strongly Agree”).

	Statements	**1**	**2**	**3**	**4**	**5**
a)	Our company is ISO certified					
b)	Our company is ISO certifies					
c)	Controlling the quality of production through total quality management has been essential in reducing the operation costs					
d)	The embrace of six sigma tool has been an essential way of enhancing quality in the organization					
e)	Through ISO certifications, the company enhances its ability to deliver the right quality of goods					
f)	Managing the quality of the products ensures higher productivity for enhanced performance					
g)	Through use of six sigma the defects and errors in the production process in the company are reduced.					
h)	Certifications plays an essential role in assuring the customers of the quality of the products					
i)	Controlling the quality of the production processes has been essential in enhancing the lead time					
j)	Analysing the key data from the supply chain processes through six sigma is an integral in enhancing the effectiveness of operations					

How would you comment on the role played by quality control and certification in enhancing the effectiveness of supply chain alignment? ……

……

SECTION 7: PERFORMANCE OF MANUFACTURING FIRMS

Please indicate the following in regard to your firm performance.

Aspect	**2017**	**2018**	**2019**	**2020**	**2021**
Net Profits (in Kshs.)					
Average Lead time in weeks					
Volume of goods produced					
Volume of returns due to defects					

On a scale of 1 – to 5 (with 1 as the lowest and five as the highest) to what extent do you think the following aspects have influenced the performance of your firm?

Aspect	**1**	**2**	**3**	**4**	**5**
Relational Behaviour					
Supplier Relationship Management					
Operations and Processes					
Inventory visibility					
Quality control and Certifications					

Please indicate your level of agreement with the following statements.

	1	**2**	**3**	**4**	**5**
Our company has been recording increased net profits in the past five years					
The profit margins recorded by the company are sustainable to steer its expansion					
The lead time for the customers has been reducing continuously over the years in our firm					
The reduction in lead time has seen an increase in the number of customers in our company					
There are fewer returns/rejections by our customers than it was in the past					
There has been an increase in the volume of units produced by the company for the past five years					
The company has been meeting the quantity of productions needed in the market for the past five years					

THANK YOU FOR YOUR TIME

Appendix III: List of Manufacturing Firms in Kenya

Building, Mining & Construction
1. African Diatomite Industries
2. Afrikstones Limited
3. Athi River Mining Ltd
4. Bamburi Cement Limited
5. Bamburi Special Products Ltd
6. Blue Stone Limited
7. Boyama Building Materials
8. Building Construction Concepts Ltd
9. Cemex Holding Ltd
10. Coast Calcium Limited
11. Dittman Construction Co. Ltd
12. East African Portland Cement Company Limited
13. Erdemann Gypsum Limited
14. Flamingo Tiles (Kenya)Limited
15. Gjenge Makers Limited
16. Glenn Investments Ltd C/O The Mehta Group Ltd
17. Greystone Industries Limited
18. Halai Concrete Quarries
19. Homa Lime Co. Ltd
20. International Green Structures Manufacturing Kenya Ltd
21. Kay Construction Company Ltd
22. Kay Salt Ltd (Formerly Krystalline Salt Ltd)
23. KEDA (Kenya) Ceramics Company Ltd
24. Kenbro Industries Ltd
25. Kensalt Limited
26. Kenya Builders & Concrete Ltd
27. Kisumu Concrete Products
28. Koto Housing Kenya Ltd
29. Kurawa Industries Ltd
30. Laxmanbhai construction Limited
31. Lexcon Enterprises Ltd
32. Malindi Saltworks Ltd
33. Mayleen (K) Limited
34. Mineral Enterprises Ltd
35. Mombasa Cement Ltd
36. National Cement Limited
37. Nevira Company Limited
38. North Rift Concrete Works Ltd

39. Orbit Enterprises Ltd
40. Pride Enterprises Ltd
41. Questworks Limited
42. Rai Cement Limited
43. Reliable Concrete Works Ltd
44. Rexe Roofing Products
45. Roofings Kenya Limited
46. Saj Ceramics Ltd
47. Sandblasting & Coating Kenya Limited
48. Savannah Cement Ltd
49. Shajanand Creative Limitesd
50. Shanga Engineering Works Limited
51. Silverstone Quarry Limited
52. Skylark Construction Ltd
53. Space and Style Ltd
54. Superstone 2006 Ltd
55. Tile & Carpet Centre
56. Tiptop Constructions Limited
57. Vallem Construction Ltd
58. Virji Vishram Patel & Son's Ltd
59. Wareng Ndovu Enterprises 2005 Ltd
60. Wotech Kenya Limited
61. X-Calibur Construction Chemistry
Chemical & Allied Sector
62. Aluglass Africa Ltd
63. Anffi Kenya Ltd
64. Basco Products (K) Ltd
65. Basf East Africa Limited
66. Bayer East Africa Ltd
67. Beiersdorf East Africa Ltd
68. Bibika Limited
69. Biocorn Products (EPZ) Ltd
70. Blends of Nature Limited
71. Blue Ring Products Ltd
72. BOC Kenya Limited
73. Buyline Industries Ltd
74. Canon Chemicals Ltd (former United Chemicals Ltd)
75. Carbacid (CO2) Limited
76. Central Glass Industries Ltd
77. Chemraw EA Limited
78. Chrysal Africa Ltd

79. Chryso Eastern Africa Limited
80. Colgate Palmolive (EA) LTD
81. Coral Paints Ltd
82. Crown Paints Kenya PLC
83. Darfords Enterprises Ltd
84. Decase Chemicals (Ltd)
85. Deluxe Inks Ltd
86. Desbro Kenya Limited
87. Diversey Eastern and Central Africa Limited
88. Dow Chemicals East Africa Limited
89. Eastern Chemicals Industries Ltd
90. Ecological Industries Limited
91. Empire Glass Industries Ltd
92. Enviro Hub Holdings Ltd
93. Evonik East Africa
94. Flame Tree Africa Ltd
95. Galaxy Paints & Coating Co. Ltd
96. H.B. Fuller Kenya Limited
97. Haco Industries
98. Henkel Kenya Ltd
99. Henkel Polymer Company Ltd
100. Highchem East Africa Ltd
101. Hi-Tech Inks
102. IMCD Kenya Ltd (Formerly Chemical & Solvent (EA) Ltd
103. Impact Chemicals Ltd
104. Instant Pest Control Services Ltd
105. Interconsumer Products Limited
106. Jumbo Foam Mattress Industries Ltd
107. Kanasi Plascon Kenya Ltd
108. Kanku Kenya Limited
109. Kaolin Crowners Company Limited
110. Kapi Ltd
111. Kel Chemicals Limited
112. Kemia International Ltd
113. Ken Nat Ink & Chemicals Ltd
114. Kenafric Matches Limited
115. Kip Melamine Co. Ltd
116. L'Oreal East AfricaLtd
117. Maisha Bora Company Limited
118. Maroo Polymers Ltd
119. Mekan (Kenya) Limited

120.	Milly Glass Works Ltd
121.	Mosara Ltd
122.	Murphy Chemicals (E.A)(Ltd
123.	Nature's Touch LLP
124.	Neuce Kenya Paint Industry Limited
125.	Norbrook Kenya Limited
126.	Odex Chemicals Ltd
127.	Orbit Products Africa Limited (Formerlt Orbit Chemicals)
128.	Osho Chemicals Industries Ltd
129.	Pan Africa Chemicals Ltd
130.	PolyChem East Africa Ltd
131.	Polymer & Chemicals Limited
132.	Premium Hygiene Products Limited
133.	Procter & Gamble East Africa Ltd
134.	Protea Chemicals Kenya Ltd
135.	PZ Cussons EA Ltd
136.	Reckitt Benckiser (E.A.) Ltd
137.	Revolution Stores Ltd
138.	Rok Industries Ltd
139.	Rumorth EA Ltd
140.	Rutuba Bio Agric and Organic Fertilizers company Ltd
141.	Sanergy Ltd
142.	Sanvoks Industries Limited
143.	SC Johnson and Son Kenya
144.	Seweco Paints Ltd
145.	Sheth Online Limited
146.	Shreeji Chemicals Limited
147.	Silentnight Bedding LTD
148.	Silmak Agencies
149.	Slumberland Kenya Ltd
150.	Solpia Kenya Limited
151.	Solvochem East Africa Ltd
152.	Sunda Industrial Company Limited
153.	Super foam ltd
154.	Superfoam ltd
155.	Supersleek Ltd
156.	Suprima Industries Limited
157.	Syngenta East Africa Ltd
158.	Synresins Ltd
159.	TAM TAM Diani Limited
160.	Tata Chemicals Magadi Ltd

161.	The Amazing Nyumba Co Ltd
162.	Tri-Clover Industries (K) Ltd
163.	Tropikal Brand (Afrika) Ltd
164.	Twiga Chemical Industries Limited
165.	Ujasiri Limited
166.	Unilever Kenya Ltd
167.	Uzuri Industries Limited
168.	Valencia Cosmetics Ltd
169.	Vision Industries
170.	Vitafoam Products Limited
171.	Waridi Creations Ltd
172.	Westminister Paints & Resins Ltd
173.	Yilmaz Company Limited
174.	Zene Limited
	Energy, Electrical and Electronics
175.	AEA Limited
176.	African Cables Limited
177.	Aial Group limited
178.	Alternative Energy Systems Ltd
179.	Amedo Centre Kenya Ltd
180.	Asano International Limited
181.	Aucma Digital Technology africa Ltd
182.	Azuri Technologies Kenya Limited
183.	Baumann Engineering Limited
184.	BCS Kenya Limited
185.	Biogas International Limited
186.	Biogas Power Holdings (EA) Ltd
187.	Cockerill East Africa Limited (CEAL) Formerly Socabelec (EA)
188.	Daima Energy Services
189.	East African Cables Ltd
190.	Holman Brothers (E.A) Ltd
191.	Ibera Africa Power (EA) Ltd
192.	International Energy Technik Ltd
193.	Kenwest Cables Ltd
194.	Kenya Electricity Generating Company Limited (KENGEN)
195.	Kenya Petroleum Refineries Ltd
196.	Kenya Power Co. Ltd
197.	Kitale Cinema Shop
198.	Koko Networks Limited
199.	Lacheka Lubricants Limited
200.	Lake Turkana Wind Power Limited

201.	Libya Oil Kenya Limited.
202.	Lucky Star General Limited
203.	Mafi East Africa Limited
204.	Manufacturers & Suppliers (K) Ltd
205.	Marshall Fowler (Engineers) Ltd
206.	Metsec Cables Ltd
207.	M-Kopa Kenya Limited
208.	Muhoroni Briquette Co. Limited
209.	Mustek East Africa
210.	Nationwide Electrical Industries Ltd
211.	Optimum Lubricants Ltd
212.	Pan Africa Transformers & Switchgears Limited
213.	Patronics Services Limited
214.	PCTL Automation Ltd
215.	Pentagon Agencies
216.	Philips East Africa Limited
217.	Plenser Limited
218.	Powerex Lubricants Limited
219.	Premier Solar Solutions Ltd
220.	Protel Studios
221.	Proto Energy Limited
222.	Quantum Lubricants (EA) Limited
223.	Rabai Power Limited
224.	Repelectric (K) Ltd
225.	Roka Industries Ltd
226.	Saiger Kenya Limited
227.	Schneider Electric Ltd (Formerly Power Technics Eat Africa)
228.	Siera Cables East Africa
229.	Sloimppexs Africa Limited
230.	Solar Power & Infrastructures Limited
231.	Solimpexs Africa Limited
232.	Solinc East Africa Limited (Formerly Ubbink East Africa)
233.	Sollatek Electronics (Kenya) Limited
234.	Specialised Power Systems Ltd
235.	Steam Plant Ltd
236.	Synergy Gases (K) Ltd
237.	Synergy Lubricant Solutions Ltd
238.	Synergy-Pro
239.	Tian Long Industry Limited
240.	Vivo Energy
241.	Welrods ltd

242.	Yash Poles Ltd
243.	Yocean Group Ltd
	Food & Beverages Sector
244.	Aariva Ltd
245.	Afribon (K) Limited
246.	Africa Spirits Ltd
247.	African Coffee
248.	Afrimac Nut Company
249.	Agri Pro-Pak Limited
250.	Agricultural & Veterinary Supplies Ltd (Agrivet)
251.	Agriner Agricultural Development
252.	Agro Chemical & Food Company Ltd
253.	Al- Noor Feisal & Co Ltd
254.	Alliance One Tobacco Kenya Ltd
255.	Al-Mahra Industries Ltd
256.	Al-mahra Industries Limited
257.	Almasi Beverages Limited
258.	Almasi Bottlers Limited Formerly Mount Kenya Bottlers Lted
259.	Alpha Fine Foods Ltd
260.	Alpha Grain Millers Limited
261.	Alpine Coolers Ltd
262.	APT Commodities Limited
263.	Aquamist Ltd
264.	Arax Mills Limited
265.	Arkay Industries Ltd
266.	Aviano East Africa
267.	Azaavi Collections
268.	Bakemark Limited
269.	Bakers Corner Ltd
270.	Bakex Millers Ltd
271.	Bakhresa Grain Milling (K) Ltd
272.	Bdelo Ltd
273.	Belat Enterprises
274.	Belfast Millers Ltd
275.	Bidco Africa Ltd
276.	Bio Food Products Limited
277.	Bloc Enterprises Limited
278.	Blueplastics and Water Co. Limited
279.	Brava Food Industries Limited
280.	Breakfast Cereal Company (K) Ltd (Formerly Weetabix)
281.	Britania Foods Ltd (Formerly Jambo Biscuits)

282.	British American Tobacco Kenya Plc Formerly (BAT Ltd)
283.	Broadway Bakery Ltd
284.	Brookside Dairy Ltd
285.	Brown Biashara Limited
286.	Buffalo Millers
287.	Bulto Foods Ltd
288.	Bunda Cakes & Feeds Ltd
289.	Burton and Bamber Company Ltd
290.	Butali Sugar Mills Ltd
291.	Buuri Millers Enterprises
292.	C. Dormans Ltd
293.	C.Czarnikow Sugar(EA) ltd
294.	Cadbury Kenya Ltd
295.	Caffe Del Duca Ltd
296.	Candy Kenya Ltd
297.	Capel Food Ingredients
298.	Capwell Industries Ltd
299.	Carojim Cookery Enterprise
300.	Caterina Bakery Limited
301.	Centrofood Industries Ltd
302.	Chai Trading Company Limited
303.	Chemelil Sugar Company Ltd
304.	Chirag Kenya Limited
305.	Coastal Bottlers Limited
306.	Coca-Cola East Central and West Africa Ltd
307.	Coca-Cola Juices (K) Ltd
308.	Coffee Agriworks Ltd
309.	CoffTea Agencies
310.	Confini Limited
311.	Cornbelt Flour Mill
312.	Crofts LTD
313.	Crown Beverages LTD
314.	Danone Baby Nutrition Africa and Overseas
315.	Del Monte Kenya Ltd
316.	Deylin Ultimate springs limited
317.	Diamond Industries Limited
318.	Doinyo Lessos Creameries Ltd
319.	DPL Festive Ltd
320.	Dutch Waters Limited
321.	East African Breweries Ltd
322.	East African Sea Food Ltd

323.	East African Seed Co. Ltd
324.	Eastern Produce Kenya Ltd (Kakuzi)
325.	Edible Oil Poducts
326.	Eldoret Grains Ltd
327.	Elekea Limited
328.	Elle Kenya Limited
329.	Equator Bottlers Ltd
330.	Erdemann Co. (K) Ltd
331.	Europack Industries Limited
332.	Excel Chemicals Ltd
333.	Farmers Choice Ltd
334.	Foods by Likii
335.	Frigoken Ltd
336.	FRM EA Packers Ltd
337.	Frutarom Kenya (Ltd)
338.	General Mills East Africa Limited
339.	Giloil Company Limited
340.	Githunguri Dairy Farmers Co-operative Society
341.	Glacier Food Industries Limited
342.	Glacier Products Ltd
343.	Global Fresh Ltd
344.	Global Tea & Commodities (K) Ltd
345.	Gold Crown Foods (EPZ) Ltd
346.	Golden Africa Kenya Limited
347.	Gonas Best Ltd
348.	Grains Industries Limited
349.	Green Forest Foods Ltd
350.	Halisi Maize Mills Limited
351.	Happy Cow Ltd
352.	Healthy U Two Thousand Limited
353.	Heritage Foods Kenya Ltd
354.	Highlands Mineral Water Co. Ltd
355.	Honey Care Africa
356.	Insta Products (EPZ) Ltd
357.	Isinya Feeds Ltd (Formerly Sigma Supplies Ltd)
358.	Italian Gelati & Food Products Ltd
359.	Jambo East Africa Ltd
360.	James Finlay Kenya Ltd
361.	Jetlak Foods Ltd
362.	Jjasm Mini-Distillery
363.	Juja Coffee Exporters

364.	Jungle Group Holdings Ltd
365.	Kabaru Holdings Limited
366.	Kabianga Dairy Ltd
367.	Kambu Distillers Limited
368.	Kamili Packers Ltd
369.	Kapa Oil Refineries Ltd
370.	Karirana Estate Ltd
371.	Kedsta Investment Limited
372.	Kenafric Bakery
373.	Kenafric Industries Limited
374.	Kenblest Limited
375.	Kenchic Ltd
376.	Kentaste Proucts Limited
377.	Kenya Co-Operative Coffee Dealers Ltd (KCCD)
378.	Kenya Highland Seed Co. Ltd
379.	Kenya Nut Company Ltd
380.	Kenya Seed Company Ltd
381.	Kenya Sweets Ltd
382.	Kenya Tea Development Agency
383.	Kenya Tea Packers Ltd (KETEPA)
384.	Kenya Wine Agencies Limited
385.	Kerio Valley Development Authority
386.	Keroche Industries Ltd
387.	Kevian Kenya Ltd
388.	Kibos Dairy & Farm Produce
389.	Kibos Sugar and Allied Industries
390.	Kigelia Fresh Produce Limited
391.	Kilimanjaro Biscuits Limited
392.	Kina Loaf Bakery
393.	Kinangop Dairy Limited
394.	Kirinyaga Flour Mills
395.	Kitui Flour Mills
396.	Koba Waters Ltd/ Broomhill Springs Water
397.	Krish Commodities Ltd
398.	Kuguru Food Complex Ltd
399.	Kulamawe Poultry Industries Ltd
400.	Kwale International Sugar Company Limited
401.	Kwality Candies & Sweets Ltd
402.	L.A.B International Kenya limited
403.	Landeco Ltd
404.	Luma Stores & Supplies Enter. Ltd

405.	Mace Foods Ltd
406.	Mafuko Industries Ltd
407.	Malachite Limited
408.	Malindi Natural Juice Processors Limited
409.	Mama Millers Limited
410.	Mamboleo Distillers Ltd (Formerly Kenlab Supplies Ltd
411.	Manji Food Industries Ltd
412.	Mars Wrigley Confectionery Kenya Ltd
413.	Mashwa Breweries Ltd
414.	Mayfeeds Kenya Ltd
415.	MDI Limited
416.	Megatech Limited
417.	Melvin Marsh International
418.	Menengai Oil Refineries Ltd
419.	Meru Water & Sewerage Services
420.	Midrow Kenya Limited
421.	Milly Fruit Processors Ltd
422.	Mini Bakeries (Nbi) Ltd
423.	Miritini Kenya
424.	Mjengo Limited
425.	Mombasa Maize Millers Ltd
426.	Monwalk Investment Ltd
427.	Morani Limited
428.	Mulsons Impex Ltd
429.	Mumias Sugar Company Limited
430.	Munyiri Special Honey Ltd
431.	Mwachaka Group Ltd
432.	Mwakawa Investment Limited
433.	Mwanga Millers
434.	Mzuri Sweets Ltd
435.	Nairobi Bottlers Ltd
436.	Nairobi Flour Mills Ltd
437.	Nairobi Java House Ltd
438.	Nal Packaging Holdings Ltd
439.	NAS Airport Services Ltd
440.	NesFoods Industries Ltd
441.	Nestle Kenya Ltd
442.	New Kenya Co-Operative Creameries Ltd
443.	Nicey Nicey Maize Millers Ltd
444.	Nicola Farms Ltd
445.	Njoro Canning Factory(Kenya) Ltd

446.	Norda Industries Ltd
447.	Nzoia Sugar Company Ltd
448.	Okerio Nyangau Bakery
449.	Olenguruone Natural Water Limited
450.	Olivado EPZ Limited
451.	Orchard Juice Ltd
452.	Palmhouse Diaries Ltd
453.	Patco Industries Limited
454.	Pearl Industries Ltd
455.	Pearly LLP
456.	Pembe Flour Mills Ltd
457.	Pernod Ricard Kenya Ltd
458.	Peshwood Enterprises Ltd
459.	Platinum Distillers Limited
460.	Pradip Enterprises (E.A) Limited
461.	Premier Flour Mills Ltd
462.	Premier Food Industries Limited
463.	Pride Industries Ltd
464.	Proctor & Allan (E.A.) Ltd
465.	Promasidor (Kenya) Ltd
466.	Propack Kenya Limited
467.	Propack Kenya Limited
468.	Purple Iris Africa
469.	Pwani Oil Products Ltd
470.	Rafiki Grains Kericho Ltd
471.	Rafiki Millers Ltd
472.	Raka Milk Processors
473.	RAZCO LIMITED
474.	Re-Suns Spices Limited
475.	Rift Valley Bottlers Ltd
476.	Royal Swiss Bakery Limited
477.	Sahara Venture Capital Company Ltd
478.	Salim Wazarani Kenya Company
479.	Sameer Agriculture & Livestock (Kenya) LTD
480.	Savannah Brands Company
481.	SBC Kenya Limited
482.	Scepter Millers Limited
483.	Scrumptios Eats Ltd
484.	Selecta Kenya Gmbh & Co.
485.	Shree Sai Industries
486.	Simply Foods Ltd

487.	Sky Foods Limited
488.	Slikridge Limited
489.	Social Bites Ltd
490.	South Nyanza Sugar Company
491.	Spice World Ltd
492.	Stawi Foods and Fruits Limited
493.	Sunbake Enterprises Ltd
494.	Sunny Processors Ltd
495.	Supa Snacks Ltd
496.	Superfine Africa Nuts Ltd
497.	Sweet Rus Limited
498.	T.S.S. Grain Millers Limited
499.	Toggen Milk
500.	Top Food (EA) Ltd
501.	Transmara Sugar Company Limited
502.	Trisquare Products Ltd
503.	Tropical Heat Limited (Formerly Deepa Industries)
504.	Tropical Lush Ltd
505.	Trufoods Ltd
506.	Trust Feeds Ltd
507.	Trust Flour Mills Ltd
508.	Umoja Flour Mills Ltd
509.	Umoja Maintainance Centre (K) Limited
510.	Unga Group Ltd
511.	United Millers Ltd
512.	Usafi Services Ltd
513.	Valley Confectionery Ltd
514.	Valuepak foods
515.	Vava Coffee Ltd
516.	Vert Limited
517.	Victoria Juice Company Limited
518.	Victory Farms Limited
519.	Vinepack Ltd
520.	W. E. Tilley (Muthaiga) Ltd
521.	Wanji Food Industries Limited
522.	West African Seasoning Co. Ltd
523.	West Kenya Sugar Company Ltd
524.	Winnie's Pure Health
525.	Xpressions Flora Ltd
526.	Zaytuna Enterprises Limited
527.	Zeelandia East Africa Limited

528.	Zheng Hong (K) Limited
	Leather and Footwear
529.	Addison Industries Limited
530.	Alpharama Ltd
531.	Athi River Tanneries Ltd
532.	Azu's Leather Limited
533.	Bata Shoe Co (K) Ltd
534.	Blue Waves Enterprises Limited
535.	Budget Shoes Ltd
536.	C & P Shoes Industries Ltd
537.	Denrit Ltd
538.	Kenya Suitcase Manufacturers Limited
539.	Leather Industries of Kenya Limited
540.	Macquin Shoes Ltd
541.	Maridadi Seasons Handcraft
542.	Nakuru Tanners Limited
543.	Sandstorm Africa Limited
544.	Service Shoes Africa Ltd
545.	Wazawazi Company Limited
546.	Yetu Leather Limited
547.	Zingo Investments Ltd
	Metal and Allied Sector
548.	Abyssinia Iron & Steel Ltd
549.	African Marine & General Engineering Co. Ltd
550.	Afriken International Limited
551.	Allied East Africa Ltd
552.	Alloy Steel Castings Ltd
553.	Apex Steel Ltd - Rolling Mill Division
554.	Arvind Engineering Ltd
555.	Ashut Engineers
556.	ASL Ltd
557.	ASP Company Ltd
558.	Athi River Steel Plant Ltd
559.	Atlantic Ltd
560.	Blue Nile Wire Products Ltd
561.	Booth Extrusions Limited
562.	Brollo Kenya Limited
563.	Buhler Limited
564.	Burn Manufacturing USA LLC
565.	Canton Alloys Ltd
566.	City Engineering Works Ltd

567.	Container Technology Ltd
568.	Cook 'N Lite Limited
569.	Corrugated Sheets Limited
570.	Crystal Industries Ltd
571.	Davis & Shirtliff Ltd
572.	Devki Steel Mills Ltd
573.	Doshi & Company Hardware
574.	East AFrica Cans & Closures Ltd
575.	East Africa Spectre Limited
576.	East African Foundry Works (K) Ltd
577.	East African Glassware Mart (Nairobi)
578.	Easy Clean Africa Limited
579.	Eco-Steel Africa
580.	Eldoret Farm Machinery
581.	Elite Tools
582.	Elite Tools Ltd
583.	Farm Engineering Industries Ltd
584.	Femo Works Engineering Company
585.	Fine Engineering Works Limited
586.	Fit Tight Fasteners Ltd
587.	Friendship Container Manufacturers Ltd
588.	Globology Ltd
589.	Greif Kenya Limited
590.	Guala Closures East Africa Ltd
591.	GZI Kenya Ltd
592.	Heavy Engineering Ltd
593.	Hebatullah Brothers Ltd(Formerly General Aluminium Fabricators))
594.	Herocean Enterprises Kenya Ltd
595.	Hi Tech Gravures Limited
596.	Hobra Manufacturing Ltd
597.	Hydro Aluminium Limited
598.	Insteel Limited
599.	Iron Art Ltd
600.	ISL Kenya Limited
601.	Jumbo Steel Mills Ltd
602.	Kab Kam Enterprises Ltd
603.	Kaluworks Limited
604.	Kens Metal Industries Ltd
605.	Kenya General Industries Ltd
606.	Khetshi Dharamshi & Co. Ltd
607.	King Steel

608.	Kitchen King Ltd
609.	Laminate Tubes Industries
610.	Load Trailers (E.A) Ltd
611.	Mabati Rolling Mills Limited
612.	Machine 4 Africa Ltd
613.	Mann Manufacturing Co. Ltd
614.	Mecol Limited
615.	Menengai Rolling Mills Ltd
616.	Metal Crowns Limited
617.	Mitsubishi Corporation Nairobi Liaison Office
618.	Modulec Engineering Systems Ltd
619.	Nails & Steel Products Ltd
620.	Nalin Steel Works
621.	Nampak Kenya Limited
622.	Napro Industries Limited
623.	Narcol Aluminium Rolling Mills Ltd
624.	Ndume Ltd
625.	Nirmal Fabricators Limited
626.	Nyagah Mechanical Engineering Limited
627.	Orbit Engineering Ltd
628.	Palak International Limited
629.	Patken Limited
630.	Patnet Steel Makers Manufacturers Ltd
631.	pyrrex General Agencies Ltd
632.	Red Oak Limited
633.	Richfield Engineering Ltd
634.	Royal Mabati Factory Ltd
635.	Safal Building Systems Limited
636.	Sheffield Steel Systems Ltd
637.	Sil Wire Products Limited
638.	Silverspread Hardwares Ltd
639.	Siya Industries (K) Ltd
640.	Soni Technical Services Ltd
641.	Southern Engineering Co. Ltd
642.	St Theresa Industries Kenya Limited
643.	Stainless Steel Products Ltd
644.	Standard Rolling Mills Ltd
645.	Steel structures Ltd
646.	Steelmakers Ltd
647.	Steelwool (Africa) Ltd
648.	Sundries Bargains (Nairobi) Limited

649.	Superfit Steelcon Ltd
650.	Tarmal Wire Products Ltd
651.	Tensiles EA Ltd
652.	Tin Can Manufacturers Ltd
653.	Tononoka Rolling Mills Ltd
654.	Tononoka Steel Ltd
655.	Top Steel Kenya Limited
656.	Towertech Africa Limited
657.	Varomotech Limited
658.	Velka Engineering Limited
659.	Vicensa Investments Ltd
660.	Viking Industries Ltd
661.	Vivek Investments Ltd
662.	Warren Enterprises Ltd
663.	Welding Alloys Ltd
664.	Wire Products Limited
665.	Zenith Steel Fabricators Ltd
	Motor Vehicle Assemblers & Acc.
666.	Abson Motors Limited
667.	Ace Motors
668.	Africom Group lImited
669.	Alamdar Trading Company Ltd
670.	Associated Battery Manufacturers (E.A.) Ltd
671.	Associated Vehicle Assemblers Ltd
672.	Auto Accessories International
673.	Auto Ancilliaries Ltd
674.	Auto Industries Ltd
675.	Auto Springs East Africa Ltd
676.	Automobile Warehouse Ltd
677.	Azad Automobile Trimmings Ltd
678.	Banbros Ltd
679.	Bhachu Industries Ltd
680.	Big Race Motors Ltd
681.	BMG Holdings Ltd
682.	Bodastar Enterprises Ltd
683.	Choda Fabricators Ltd
684.	Chui Auto Spring Industries Ltd
685.	Cica Motors
686.	Dalcom Kenya Limited
687.	Deeking Kenya Limited
688.	Dodi Autotech

689.	Foton East Africa Ltd
690.	Global Motors Centre Limited
691.	Handa (K) Ltd
692.	Hans Kenya Ltd
693.	Harveer Bus Body Builders Limited
694.	Highway Car Cushion & Upholstery
695.	Honda Motorcycle Kenya Ltd
696.	Impala Glass Industries Ltd
697.	Isuzu East Africa Ltd Formerly General Motors East Africa Limited
698.	Jextin Kenya Company Limited
699.	Kenya Coach Industries Ltd
700.	Kenya Vehicle Manufacturers Limited
701.	Kenyon Limited
702.	Keri Energy Limited
703.	Kibo Africa Ltd formerly Koneksie Ltd
704.	King Finn Kenya Limited
705.	King-Bird (K) Ltd
706.	Labh Singh Harnam Singh Ltd
707.	Makindu Motors Limited
708.	Mash East Africa Ltd
709.	Master Fabricators Ltd
710.	Megh Cushion Industries Ltd
711.	Mobikey Truck & Bus Limited
712.	Mobius Motors Kenya Ltd
713.	Mutsimoto Motor Company
714.	Necst Motors Kenya Limited
715.	Opibus Limited
716.	Pinnacle Systems Limited
717.	Pipe Manufacturers Ltd
718.	Plateau Motors Limited
719.	R.T. (East Africa) Limited
720.	Rockey Africa Limited
721.	Romageco Kenya Ltd
722.	Ruidu (Kenya) Company Linited
723.	Safe & Cool Ltd
724.	Saferider Management System
725.	Sagoo Holdings Ltd
726.	Scania East Africa Limited
727.	Silverline Accessories Ltd
728.	Simba Caetano Formula Limited
729.	Simba Corporation Limited

730.	Skyline Holdings Limited
731.	Sohansons Ltd
732.	Songyi Motorcycles International Ltd
733.	Sonlink (Kenya) Co. Ltd
734.	Soroya Motors Spares Ltd
735.	Springtech (K) Ltd
736.	Sunrise Capital Ltd
737.	Theevan Enterprises Ltd
738.	Toyota Kenya Ltd
739.	Toyota Tshusho East africa Limited
740.	Transafrica Motors Ltd
741.	Transallied Ltd
742.	Transtrailers Limited
743.	Turaco Limited
744.	Unifilters Kenya Ltd
745.	Uni-Truck World Ltd
746.	Varsani Brakelinings Ltd
	Paper & Board Sector
747.	Adpak International Limited
748.	Allpack Industries Ltd
749.	Anke Home Appliance Services Ltd
750.	Anvi Emporium Limited (Formerly Andika Industries
751.	Armor East Africa Imaging Supplies Ltd
752.	ASL Packaging Limited
753.	Associated Paper & Stationery Ltd
754.	Autolitho Ltd
755.	Avery Dennison Kenya Limited
756.	Bag and Envelope Converters Ltd
757.	Bags & Balers Manufacturers Ltd
758.	Bizkard Limited
759.	Boxpack Limited
760.	Brand Printers Limited
761.	Capitol Printers Limited
762.	Carton Manufacturers Ltd
763.	Cartubox Industries (E.A.) Ltd
764.	Cempack Solutions Limited
765.	Chrome Partners Limited
766.	Colour Labels Ltd
767.	Colour Packaging Ltd
768.	Colourprint Ltd
769.	D. L. Patel Press (Kenya) Limited

770.	Digital Hub Limited
771.	Dodhia Packaging Kenya Limited
772.	East African Packaging Industries Limited
773.	East African Paper Mills (Formerly Kenya Paper Mills
774.	Economic Industries Ltd
775.	Elegant Printing Works Limited
776.	Elite Offset Ltd
777.	Ellams Products
778.	English Press Ltd
779.	Essential Manufacturing Co. Ltd
780.	Euro Packaging Ltd
781.	Excel Packaging Ltd
782.	Fortuna Industries Ltd
783.	Fortunes Printers & Stationers Ltd
784.	Franciscan Kolbe Press
785.	G & F Kenya Company Limited
786.	General Printers Limited
787.	Graphic Lineups Limited
788.	Green Pencils Ltd
789.	Guaca Stationers Ltd
790.	Highland Paper Mills Ltd
791.	International Paper & Board Supplies Ltd
792.	Jubilee Tissue Industries
793.	Juja Pulp & Paper Ltd
794.	Kartasi Industries Ltd
795.	Kenafric Diaries Manufacturers Ltd
796.	Kenafric Manufacturing Limited
797.	Kenya Stationers Ltd
798.	Kim-Fay East Africa Ltd
799.	Kul Graphics Ltd
800.	Label Converters Limited
801.	Mainstream Bookshop
802.	Manipal International Printing Press Ltd
803.	Mega Pack (K) Ltd
804.	MFI Ultra Print Limited
805.	Modern Lithographic (K) Ltd
806.	Nation Media Group Ltd
807.	National Printing Press Limited
808.	Ndalex Digital Technology
809.	Packaging Manufacturers (1976) Ltd
810.	Palmy Enterprises Limited

811.	Paperbags Limited
812.	Paperplast Limited
813.	Platinum Packaging
814.	Pressmaster Africa
815.	Prime Cartons Limited
816.	Printing Services Ltd
817.	Printpak Multi Packaging Ltd
818.	Printwell Industries ltd
819.	Punchlines Ltd
820.	Raffia Bags (K) Ltd
821.	Ramco Printing Works Ltd
822.	Regal Press Kenya Ltd
823.	Rodwell Press Ltd
824.	Safari Stationers (K) Ltd
825.	Shri Krishana Overseas Ltd
826.	Sintel Security Print Solutions Limited
827.	Sitima Printer & Stationers Limited
828.	Skanem Interlabels Nairobi Limited
829.	Sketchers Design Promoters Ltd
830.	Soloh Worldwide Inter-Enterprises Ltd
831.	Standard Group Ltd
832.	Statpack Industries Ltd
833.	Taws Limited
834.	Tetra Pak Ltd
835.	The Paper House of Kenya Ltd
836.	The Print Exchange Limited
837.	Tissue Kenya Limited
838.	Twiga Stationers & Printers Ltd
839.	Uneeco Paper Products Ltd
840.	UR Home International (Kenya)
841.	Wandi Packaging Ltd
842.	Zaam Industries Ltd
	Pharmaceutical & Medical Equipment
843.	Advanced Molecular Imaging Limited
844.	African Cotton Industries Ltd
845.	Alpha Medical Manufacturers Ltd
846.	Autosterile (East Africa Limited
847.	Benmed Pharmaceuticals Limited
848.	Beta Healthcare International Limited
849.	Biodeal Laboratories Ltd
850.	Biopharma Ltd

851.	Cooper K- Brands Ltd
852.	Cosmos Limited
853.	Dawa Limited
854.	Elys Chemicals Industries Ltd
855.	Essential Drugs Limited
856.	Glaxo Smithkline Kenya Ltd
857.	KAM Industries Limited
858.	Laboratory & Allied Limited
859.	Medisel Kenya Ltd
860.	Medivet Products Ltd
861.	Metlex International Ltd
862.	Nerix Pharma Ltd
863.	Njimia (K) Ltd
864.	Oss.Chemie (K) Limited
865.	Pharm Access Africa Ltd
866.	Pharmaceutical Manufacturung Co. (K) Ltd
867.	Promed Industries Limited
868.	Questa Care Ltd
869.	Regal Pharmaceuticals Ltd
870.	Revital Healthcare (EPZ) Ltd
871.	Rift Sanitary Products Co. Ltd
872.	Skylight Chemicals Limited
873.	SoSure AFRIpads Ltd
874.	Ultimate Sports Nutrition (USN) Kenya Ltd
875.	Ultravetis East Africa Ltd
876.	Universal Corporation limited
877.	Vetcare Kenya Limited
878.	VIVA Healthcare
879.	Zain Pharmaceautica & Medical Equipments
	Plastics & Rubber Sector
880.	A Plus PVC Technology Company Limited
881.	Abhani Commercial Limited
882.	Ace Plastics Company Limited
883.	ACME Containers Ltd
884.	Adarsh Polymer Limited
885.	Advanced Plastics Limited
886.	Afri Piping Systems Kenya Ltd
887.	Africa PVC Industries Ltd
888.	Afro Plastics (K) Ltd
889.	Aquosys Limited
890.	Betatrad (K) Ltd

891.	Bobmil Industries Ltd
892.	Brush Manufacturers Ltd
893.	Buruk General Trading
894.	Canaaneast Company Limited
895.	Coast Polythene
896.	Cocorico Investments Ltd
897.	Complast Industries Limited
898.	Coninx Industries Limited
899.	Darshan Plastic Ltd
900.	Digital Packaging Innovations Holdings Ltd
901.	Dune Packaging Ltd
902.	Dynaplas Limited
903.	Eco LAB CO LTD
904.	Ecological Green Limited
905.	Elgitread (Kenya) Ltd
906.	Elgon Kenya Ltd
907.	Eslon Plastics of Kenya Ltd
908.	Finlay Brushware Ltd
909.	Five Star Manufacturers Limited
910.	Flair Kenya Ltd
911.	Foam Mattress Ltd
912.	General Industries Ltd
913.	General Plastics Limited
914.	Goldsun Ventures Limited
915.	Hari Pipes & Fittings Ltd
916.	Hi-Plast Ltd
917.	Hi-Tech Poly Limited
918.	Hope Plastics Limited
919.	Huming PVC Co. Ltd
920.	Jalaram Plastics (K) Ltd
921.	Jamlam Industries Ltd
922.	Jay Giriraj Industries (K) Limited
923.	Jumbo Chem (K) Ltd
924.	Jumbo Nile Limited
925.	Jumbo Quality Products Limited
926.	Just Plastics Limited
927.	Kamba Manufacturing (1986) Ltd
928.	Kenpoly Manufacturers Ltd
929.	Kenrub Ltd
930.	Kenstar Plastic Industries Limited
931.	King Plastics Industries Ltd

932.	Kinpash Enterprises Limited
933.	Kwality Packaging House Limited
934.	L.G. Harris & Co. Ltd
935.	Lakhir Plastics Limited
936.	Laneeb Plastic Industries Ltd
937.	Malplast Industries Ltd
938.	Mega (EA) Plastics Ltd
939.	Metro Plastics Kenya Limited
940.	Mo and Mo Company
941.	Mombasa Polythene Bags Ltd
942.	Nairobi Plastics Ltd
943.	Nakuru Plastics Limited
944.	NES polypack Limited
945.	Novamont Kenya Limited
946.	Ombi Rubber Rollers Ltd
947.	Packaging Industries Ltd
948.	Packaging Masters limited
949.	Paras Industries Limited
950.	Plast Packaging Industries Limited
951.	Plastic Electricons
952.	Plastics & Rubber Industries Ltd
953.	Polly Propelin Bags Ltd
954.	Polyblend Limited
955.	Polyflex Industries Ltd
956.	Polytanks and containers
957.	Polythene Industries Ltd
958.	Premier Industries Ltd
959.	Pyramid Packaging Ltd
960.	Pyramid Industries Ltd
961.	Qualityplast Ltd
962.	Redplum Enterprises Limited
963.	Ritepak Limited
964.	Royal Group Industries (K) Ltd
965.	Rubber Products Ltd
966.	Rushabh Industries Ltd
967.	Safepak Limited
968.	Sameer Africa Ltd
969.	Sanpac Africa Ltd
970.	Shiv Enterprises (E) Ltd
971.	Signode Packaging Systems Ltd
972.	Silafrica Kenya Ltd

973.	Silpack Industries Limited
974.	Silver Coin Imports Limited
975.	Singh Retread Ltd
976.	Smartpack Limited
977.	Springbox Kenya Ltd
978.	Style Industries ltd (Previously Strategic)
979.	Styroplast Limited
980.	Super Manufacturers ltd
981.	Supreme Poly Pack (K) Ltd
982.	Techno-Plast Ltd
983.	Techpak Industries Ltd
984.	Top pak Ltd
985.	Torrent East Africa Limited
986.	Treadsetters Tyres Ltd
987.	Umoja Rubber Products Ltd
988.	Uni-plastics Limited
989.	United Bags Manufacturers Ltd
990.	Vectus Kenya Ltd
991.	Vintz Plastics Limited
992.	Visionone Industries Limited
993.	Vyatu Ltd
994.	Zaverchand Punja Ltd
Textile & Apparels Sector	
995.	Adpack Limited
996.	Africa Apparels EPZ LTD
997.	Akinyi Odongo
998.	Alltex EPZ Ltd
999.	Alpha Knits Limited
1000.	Ashton Apparel EPZ Ltd
1001.	Beberavi Collections
1002.	Beberavi Collections Ltd
1003.	Bedi Investments Limited
1004.	Brilliant Garments EPZ Ltd
1005.	Chalange Industries
1006.	Dharamshi & Co. Ltd
1007.	Eriken Manufacturing Industries Ltd
1008.	Ethical Fashion Artisans EPZ Ltd
1009.	Fantex (K) Ltd
1010.	Forces Equipment (Kenya) Ltd
1011.	Gees services on Wheels Limited
1012.	Global Apparrels Ltd

1013. Gone Fishing
1014. Hanitex (EPZ) Ltd
1015. Hansraj and Fulchand Group Ltd
1016. Hantex Garments EPZ Limited
1017. Hela Intimates EPZ LTD
1018. Insight Kenya
1019. Kamyn Industries Limited
1020. Kapric Apparels EPZ Ltd
1021. Kavirondo Filments Ltd
1022. Kema E.A. Ltd
1023. Ken-Knit (Kenya) Ltd
1024. Kenya Shirts Manufacturers Company Ltd
1025. Kenya Tents Limited
1026. Kenya Trading EPZ Ltd
1027. Kiboko Leisure Wear Limited
1028. Kidosho Apparel
1029. Kikoy Co. Ltd
1030. Kikoy Mall
1031. Kikoy Mall EPZ Ltd
1032. Knitkraft Products Limited
1033. Le-Stud Limited
1034. Life Bridge Limited
1035. Long-Yun (Formerly Senior Best Garments)
1036. Longyun Garments Kenya EPZ Ltd
1037. Manchester Outfitters Limited
1038. Mega Apparel Industries (EPZ) Ltd
1039. Mega Garment Industries Kenya (EPZ)
1040. Metamophosis Fashions Limited
1041. Midco Textiles (EA) Ltd
1042. Mills Industry Ltd
1043. Mombasa Apparells
1044. Nakuru Industries Ltd
1045. New Wide Garments Kenya EPZ LTD
1046. Omega Apparels Ltd
1047. Oriental Mills Ltd
1048. Panah Limited
1049. Penny Galore Ltd
1050. Rivatex (East Africa) Ltd
1051. Roar Media Limited
1052. Royal Garment Industries EPZ Ltd
1053. Sai Sports wear Uniform Limited

1054. Shin-Ace Garments Kenya (EPZ) Ltd
1055. Shona EPZ Limited
1056. Shuka Duka limited
1057. Simba Apparel EPZ Ltd
1058. SOKO EPZ Ltd
1059. Spin Knit Limited
1060. Spinners & Spinners Ltd
1061. Spot On Enterprises
1062. Straightline Enterprises Ltd
1063. Suman Shakti
1064. Summit Fibres Ltd
1065. Sun Pride Garments Limited
1066. Sunflag Textile & Knitwear Mills Ltd
1067. Supra Textiles Ltd
1068. Tarpo industries
1069. Teita Estate Ltd
1070. Thika Cloth Mills Ltd
1071. TSS Spinning And Weaving Ltd
1072. Tulips Collections Limited
1073. Ubuntu Life Foundation (Formerly Confort the Children International)
1074. United Aryan (EPZ) Ltd
1075. Vaja's Manufacturers Limited
1076. Vicamech Limited
1077. Vivo Actve Wear
1078. Wildlife Works (EPZ) Ltd
1079. World of Kikoys
1080. Zaritex Knitwear Kenya
Timber, Wood & Furniture Sector
1081. Door Factory Ltd
1082. African Retail Traders (2005) Ltd
1083. Biashara Master Sawmills
1084. Budget Furniture Ltd
1085. Comply Industries Ltd
1086. Contrive Industries Limited
1087. Decagon Sawmills Ltd
1088. Economic Housing Group Ltd
1089. Elburgit Enterprises Ltd
1090. Elida Industries Limited
1091. Fine Wood Works Ltd
1092. FunKidz Limited
1093. Furniture International Limited

1094. GreenPot Enterprises Limited
1095. House of Sahara Enterprises Limited
1096. Kenya Wood Products Limited
1097. Kimita Investment
1098. Ligna Ltd
1099. Little Cribs Ltd
1100. MAJOR FURNITURE
1101. Marlowlink Timber Products Ltd
1102. Marvel Lifestyle Ltd
1103. Match Masters Ltd
1104. Newline Ltd
1105. Panesar's Kenya Ltd
1106. Party Lounges Ltd
1107. PG Bison Ltd
1108. Rai Plywoods (Kenya) Ltd
1109. Renocon
1110. Rosewood Furniture Manufacturers Ltd
1111. Savanah Saw Mills
1112. Shah Timber Mart Ltd
1113. Shamco Industries Ltd
1114. Shayona Timber Ltd
1115. Springboard Timber Craft Ltd
1116. Timber Treatment International Ltd
1117. TIMSALES LIMITED
1118. Tropical Saw Mill Limited
1119. Turea Ltd
1120. Watervale Investments Ltd
1121. Woodmakers (K) Ltd
1122. Woodtex Kenya Ltd
1123. Yangguang Property Design & Manufacturing Ltd

Source: Kenya Association of Manufacturers (KAM). (2021)

Skewness and Kurtosis

			Statistic	Std. Error
Relational Behaviour	Mean		3.5043	.05111
	95% Confidence Interval for Mean	Lower Bound	3.4032	
		Upper Bound	3.6055	
	5% Trimmed Mean		3.5102	
	Median		3.5000	
	Variance		.332	
	Std. Deviation		.57598	
	Minimum		1.68	
	Maximum		5.00	
	Range		3.32	
	Interquartile Range		.75	
	Skewness		-.110	.215
	Kurtosis		.712	.427
Supplier Relationship Management	Mean		3.1802	.07015
	95% Confidence Interval for Mean	Lower Bound	3.0414	
		Upper Bound	3.3190	
	5% Trimmed Mean		3.1841	
	Median		3.1000	
	Variance		.625	
	Std. Deviation		.79057	
	Minimum		1.19	
	Maximum		5.00	
	Range		3.81	
	Interquartile Range		1.00	
	Skewness		-.034	.215
	Kurtosis		-.178	.427
Inventory visibility	Mean		3.4128	.05890
	95% Confidence Interval for Mean	Lower Bound	3.2963	
		Upper Bound	3.5294	
	5% Trimmed Mean		3.4293	
	Median		3.5000	
	Variance		.441	
	Std. Deviation		.66375	
	Minimum		1.21	
	Maximum		5.00	
	Range		3.79	
	Interquartile Range		.83	
	Skewness		-.450	.215
	Kurtosis		.370	.427
Operations and Processes	Mean		3.1897	.05774

	95% Confidence Interval for Mean	Lower Bound	3.0754	
		Upper Bound	3.3039	
	5% Trimmed Mean		3.2017	
	Median		3.1667	
	Variance		.423	
	Std. Deviation		.65066	
	Minimum		1.27	
	Maximum		4.87	
	Range		3.60	
	Interquartile Range		1.00	
	Skewness		-.256	.215
	Kurtosis		-.231	.427
Quality Control and Certification	Mean		2.9939	.07070
	95% Confidence Interval for Mean	Lower Bound	2.8540	
		Upper Bound	3.1338	
	5% Trimmed Mean		2.9972	
	Median		3.1250	
	Variance		.635	
	Std. Deviation		.79671	
	Minimum		1.25	
	Maximum		5.00	
	Range		3.75	
	Interquartile Range		1.00	
	Skewness		-.246	.215
	Kurtosis		-.105	.427
Performance of Manufacturing Firms	Mean		3.3319	.06031
	95% Confidence Interval for Mean	Lower Bound	3.2125	
		Upper Bound	3.4512	
	5% Trimmed Mean		3.3332	
	Median		3.3333	
	Variance		.462	
	Std. Deviation		.67968	
	Minimum		1.17	
	Maximum		5.00	
	Range		3.83	
	Interquartile Range		1.00	
	Skewness		-.163	.215
	Kurtosis		-.006	.427