

**SUPPLY CHAIN INTEGRATION AND OPERATIONAL
PERFORMANCE AMONG MULTINATIONAL MANUFACTURING
FIRMS IN KENYA**

BY

KEVIN K. BIRGEN

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR AWARD OF THE DEGREE OF MASTER OF BUSINESS
ADMINISTRATION IN PROCUREMENT AND SUPPLY CHAIN
MANAGEMENT, UNIVERSITY OF NAIROBI.**

NOVEMBER 2021

DECLARATION

This research project is my original work and has not been submitted for examination in any other university.

Signature 

Date..... 18th November 2021

Kevin K. Birgen

D61/7256/2017

This research project has been submitted for examination with my approval as university supervisor.

Signature 

Date..... 18/11/2021


Michael K. Chirchir, Lecturer

Department of Management Science and Program Planning

School of Business

University of Nairobi

ACKNOWLEDGEMENTS

I wish to sincerely express my profound appreciation to all those who contributed directly or indirectly, to the successful accomplishment of this project. I offer ultimate thanks to God for answering my prayers and gracing me towards the completion of my MBA course.

Firstly, I would like to thank Mr. Michael Chirchir, my supervisor for his precious assistance during the entire period of writing this research project. Thank you for your patience and supervision.

Secondly, to my family, especially my Mum- Purity Thara, sisters, Nelli and Linet for their support in prayers and challenging me every day to complete the course.

Thirdly, to my colleagues and office manager, who understood my study commitment and supported me all through.

Last but not least, my employer, DAI Global LLC - East Africa Trade and Investment Hub (the Hub), for the time and support accorded.

DEDICATION

I dedicate this project to my friends and family who have encouraged me and a special gratitude to my Mum- Purity Thara, sisters- Nellius and Linet for their great support, never ending encouragement and prayers towards the successful completion of this course. Thank you for being there when I required you most.

Thank you Almighty God for seeing me through this long journey.

TABLE OF CONTENTS

DECLARATION	ii
ACKNOWLEDGEMENTS	iii
DEDICATION	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
ABBREVIATION AND ACRONYMS	x
ABSTRACT.....	xi
CHAPTER ONE: INTRODUCTION	1
1.1 Background of the Study	1
1.1.1 Supply Chain Integration.....	2
1.1.2 Operational Performance.....	3
1.1.3 Manufacturing Sector in Kenya.....	5
1.2 Research Problem.....	7
1.3 Objectives of the Study	9
1.4 Value of the Study.....	9
CHAPTER TWO: LITERATURE REVIEW	11
2.1 Introduction	11
2.2 Theoretical Literature Review.....	11
2.2.1 Resource Based View.....	11
2.2.2 Relational View Theory.....	11
2.2.3 The Resource Dependence Theory.....	12
2.3 Supply Chain Integration	12
2.3.1 Supplier Integration	12
2.3.2 Customer Integration	13
2.3.3 Internal Integration	14
2.4 Supply Chain Integration and Operational Performance	14
2.5 Empirical Literature Review	15
2.6 Conceptual Framework	18

Figure 2.1: Conceptual Model.....	18
CHAPTER THREE: RESEARCH METHODOLOGY	20
3.1 Introduction	20
3.2 Research Design	20
3.3 Population.....	20
3.4 Data Collection.....	20
3.5 Data Analysis.....	21
CHAPTER FOUR: PRESENTATION AND ANALYSIS OF RESEARCH FINDINGS.....	23
4.1 Introduction	23
4.2 Response Rate	23
4.3 General Information	23
4.3.1 Gender	23
4.3.2 Qualification	24
4.3.3 Department	25
4.3.4 Years in Current Position	25
4.3.5 Age.....	26
4.4 Descriptive Statistics	26
4.4.1 Supplier Integration	26
4.4.2 Internal Integration	27
4.4.3 Customer Integration	28
4.4.4 Extent of Supply Chain Integration	30
4.5 Supply Chain Integration and Operational Performance	30
4.5.1 Supply Chain Integration and Cost.....	31
4.5.2 Supply Chain Integration and Quality	32
4.5.3 Supply Chain Integration and Flexibility	34
4.5.4 Supply Chain Integration and Speed	36
4.5.5 Supply Chain Integration and Dependability	37
4.6 Discussion of Findings	39
CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	41
5.1 Introduction	41
5.2 Discussion of Findings.....	41
5.3 Conclusions	42
5.4 Recommendations for Policy and Practice.....	43

5.5 Limitations of the Study	44
5.6 Suggestions for Further Research	44
REFERENCES.....	46
Appendix I: Research questionnaire	54
Appendix II: List of Multinational Manufacturing Companies in Kenya.....	61

LIST OF TABLES

Table 4.1: Response Rate.....	23
Table 4.2: Gender.....	24
Table 4.3: Highest Level of Education	24
Table 4.4: Role in the Firm	25
Table 4.5: Work Experience with Current Employer	25
Table 4.6: Total Work Experience.....	26
Table 4.7: Descriptive Statistics for Supplier Integration.....	27
Table 4.8: Descriptive Statistics for Internal Integration.....	28
Table 4.9: Descriptive Statistics for Customer integration.....	29
Table 4.10: Extent of Supply Chain Integration	30
Table 4.11: Regression Coefficients on Cost.....	31
Table 4.12: Model Summary on Cost.....	31
Table 4.13 ANOVA Table on Cost.....	32
Table 4.14 Regression Coefficients on Quality	32
Table 4.15: Model Summary on Quality	33
Table 4.16 ANOVA Table on Quality	34
Table 4.17 Regression Coefficients on Flexibility	34
Table 4.18: Model Summary on Flexibility.....	35
Table 4.19 ANOVA Table on Flexibility	35
Table 4.20 Regression Coefficients on Speed	36
Table 4.21: Model Summary on Speed.....	37
Table 4.22 ANOVA Table on Speed	37
Table 4.23 Regression Coefficients on Dependability	38
Table 4.24: Model Summary on Dependability.....	38
Table 4.25 ANOVA Table on Dependability	39

LIST OF FIGURES

Figure 2.1: Conceptual Model	18
------------------------------------	----

ABBREVIATION AND ACRONYMS

CI	Customer Integration
ERP	Enterprise Resource Planning
II	Internal Integration
KAM	Kenya Association of Manufacturers
KIRDI	Kenya Industrial Research and Development Institute
KNBS	Kenya National Bureau of Standards
OP	Operational Performance
SCI	Supply Chain Integration
SCM	Supply Chain Management
SI	Supplier Integration
SMEs	Small and Medium Enterprises
SPSS	Statistical Package for the Social Sciences

ABSTRACT

Organizations survive and grow in today's competitive business environment through integrating supply chain players. Thus, Supply Chain Integration practices are used to improve their competitiveness and operational performance. The most successful organizations seem to be those that have linked their supply chains partners. The key objective was determining how supply chain integration as well as its application impact operational performance among multinational Kenyan manufacturing firms. The research study was centered on the following objectives: To determine the extent of supply chain integration among the multinational companies in the manufacturing industry in Kenya and to determine how supply chain integration approaches impact operational performance among the firms. The research adopted the relational view theory, resource-based view and resource dependence theory. This study utilized a descriptive survey research design. The survey comprised 46 multinational manufacturing companies in Kenya as its population. The target participants were the operational managers in these firms. Data was obtained from 36 of the 46 giving a response rate of 78.3%. The study used primary data obtained from the original sources using questionnaires. The questionnaires were sent out through email through a Google form. Data collected through questionnaires was translated from a basic response format to a quantitative format for use in the SPSS analysis. This method produced descriptive statistics such as frequencies and percentages, as well as inferential statistics. The association between the dependent and independent variables was demonstrated using a multivariate linear regression model. Conclusions revealing that the multinational manufacturing firms have adopted supply chain integration (supplier, internal and customer) to a great extent. The study results too revealed supplier integration influenced all the five measures of operational performance positively. Results also demonstrate that internal integration influenced all the five measures of operational performance positively. Further, results illustrate that customer integration influenced the five measures of operational performance positively. The regression results backing the outcomes as there was a positive as well as significant correlation between supplier, internal, and customer integrations with each of the five measures of operational performance. The research suggests the necessity for having multinational manufacturing firms continue implementing supplier integration, internal and customer integration as this will boost operational performance and lead to business success. The conclusions of this research will assist managers in focusing on supply chain integration for improved operational performance within their enterprises, resulting in improved business performance.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

In the global market, supply chain management is a complicated process owing to difference in location of suppliers and partners and the classical logistics of facility location, sourcing, and distribution are under the influence of political and economic factors. Organizations are continually functioning in an environment that is ever-changing which is categorized by rivalry in globalization, competition, differentiation, increased expectations and demands of different customers and performance-related issues (Sroka, Szántó, & Vveinhardt, 2018). The world economy has continued to be globalized and firms are exploring ways to survive in a competitive world by having efficient supply chain (Hassler, 2004). As firms attempt to remain competitive within the market place, there are internal operational functions that must be improved continually.

Supply chain management (SCM) provides organizations with approaches to be competitive in their operations (Azadi, Saen & Zoroufchi, 2014; Mortensen, Freytag & Arlbjørn, 2008). Organizational integration is promoted by supply chain management in order to strengthen organizational partnership (Ajmera & Cook, 2009; Zhang, Gunasekaran & Wang, 2015). Organizations that operate in the international market always tend to achieve good performance. In order for firms to operate effectively in this market, they should ensure that their output is available in the right place and time. It is difficult for a single company to have all the resources to achieve this and therefore, firms should aim to share resources through partnership-based coordination (Resse, 2005).

Manufacturing is an activity that utilizes a variety of capabilities and adds value to a raw material into different outputs. Manufacturing industry leads to economic growth, employment, modernization and development (Libanio & Moro, 2007). Supply chain integration is explained by a number of theories for instance the Resource based view (RBV). Barney (1991) noted that resources, competences and strategic assets when combined enable the firm to operate efficiently and accomplish its objectives. In order

for firms to achieve competition advantage over other firms, they need to combine resources uniquely (Dyer and Singh, 1998). RBV argues that strategic resources, for instance core competence are used to explain differences in firm performance (Prahalad and Hamel, 1990).

1.1.1 Supply Chain Integration

Lyson and Farrington (2006) defined SCM as the process and movement of raw materials from suppliers to transformation of the goods and services to downstream customers while meeting their expectation and that of the organization at the same time managing all flow of information, knowledge and financial resources. Chopra and Meindl (2007) describe supply chain being made up of members either all parties are directly in achieving customer needs. For instance, in a manufacturing company, all functions that are involved in filling and receiving a customer order make up the supply chain. These functions can be distribution, operations, marketing and customer service.

The extent by which organizations cooperates through its supply chain participants strategically and manages both the inter and intra -organizational processes is Supply Chain Integration (Flynn, Huo & Zhao, 2010). It is also the process through which internal functional units, consumers and suppliers integrate to ensuring optimum performance of the organization (Frohlich and Westbrook, 2001).

Despite SCI having been studied in the past decade, the subject still gathers interest due to its multidimensional nature. Conferring to Kim (2013) and Flynn et al, (2010), Integrating SCI approaches are supplier, consumer and internal integration. Kim (2013) refers to supplier integration to be process in which the organization and the supplier share apply operating, knowledge and financial for mutual benefits; whereas, customer integration as the process in which organizations identify, explain and use consumers to produce output that meet their desires and that satisfy and maximize their expectations; and internal integration is the process and practice of merging and developing internal resources for sharing information and knowledge within and outside the organization functions with an aim of helping external integration and

achieving goals.

In a global market, organizations are able to gain competitive advantage when they incorporate SCM in their operations for their market output, (Jones, 1998). Organizations should recognize the need of integration between the supply chain partners to achieve maximum mutual benefits leading an effective operational performance and a successful supply chain.

Despite many researchers advocating the benefits of SCI, many organizations have faced a number of challenges implementing it as well as the global economy. In the current business world, competition on single firm is not relevant and thus there is need for firm's whole supply chain to compete with the other supply chain units (Antai, 2011; Fawcett, Stanley, & Smith, 1997). Therefore, for organizations to realize the maximum output from the supply chain associates, they need to cooperate, coordinate, and collaborate (Flint, 2004).

1.1.2 Operational Performance

Performance entails achieving specific business objectives and goals measured against identified standards, cost and completeness (Davis & Cobb, 2010). According to Rolstadas (1998), there is need for organizations to comprehend the link of the performance criteria and that facilitates the realization of performance in the organization, which are quality, efficiency, and profitability, quality of work, productivity, and innovation. In addition, known as performance objectives. Frohlich and Westbrook, 2001 noted that manufacturing firms develop and adopt strategies that will integrate internal functions, suppliers and customers that will help the organization achieve competitive advantage and operational performance.

Zhu and Sarkis (2004) distinguished that organization's operational performances are measured against set indicators or performance objectives. Organization output is measured through performance a measure of manufacturing cycle time, and reliability, which influences the customer satisfaction and market share (Voss, Åhlström, & Blackmon, 1997). Conferring to Slack, Chambers and Johnston (2007), cost, dependability, flexibility, speed, and quality are the foremost performance objectives

for an organization and which are aligned towards customer satisfaction requirements as explained below.

Organization competing on cost, tend to lower their operation costs, this is by developing attractive collaboration with suppliers such as having better terms of supplying contracts and sourcing of the best mix of inputs and resources. Russell & Taylor 1995, noted that elimination of waste such as inefficiencies from purchasing, production, and staff performance should be eliminated in order for organizations to compete on cost. Dependability involves trustworthiness and reliability and organizations can attain this by having dependable equipment, having efficient ERP system, a motivated workforce, and transparency of processes. Corbett, 1992 noted that for firms to be reliable they should constantly perform as expected over time. For firms to compete on flexibility, they should be in a capacity to change operations over time in order to fulfil new requirements. It also involves being able to produce a wide mix of output. When firms compete on quality, they aim to make things right by ensuring that their output do not have any defects and continuously meet market and customers' expectations and satisfaction. To ensure quality output, supplier integration should be implemented and ensure that suppliers provide the firms with quality input for manufacturing. Flynn et al (2010) noted that integration in the manufacturing sector helps firms reduce error, thus improving quality of output through information sharing and joint planning leading to an improved operational performance. When organizations compete on speed, they should aim at providing the output to the market and clients at the least possible time and this entails making quick decisions and swift movement of materials and information. This can help smoothen the supply chain integration by ensuring that speed performance factor is considered by the supply chain members.

Operational performance entails having an effective flow of operations in the organization which are not limited to reducing inventory, reducing delivery lead time, and ensuring optimal level in the machines (Zhu, Sarkis & Lai, 2012). In order for organization to be competitive they have to make use of the 5 different performance objectives. This study therefore will focus on the O.P objectives of cost, quality,

speed, dependability and flexibility amongst Kenyan multinational manufacturing firms.

1.1.3 Manufacturing Sector in Kenya

In the economic development of Kenya this is a crucial aspect as it contributes to national output, exports, and job creation (Kenya Investment Authority, 2018). Learning to Compete (L2C) on industrial development in Africa, Working Paper No. 25 noted that, there has been minimal changes characterized by a slow growth rate in the structure of Kenya's manufacturing sector in that most production is for consumer goods. In regards to the Kenya Association of Manufacturers (KAM), micro, small, medium and large industries compose the structure of Kenya's manufacturing sector which are differentiated by the levels of capital invested and employment.

The medium and large industries is made up of not more than 5 % of the whole number of firms but led to over 60% towards the contribution in GDP. Both the small and micro firms is made up of 95% of total industries but led to only 20% towards the GDP. KAM members are divided into 14 sectors where, 12 are in the processing as well as the value addition; whereas, the other 2 deal with critical services in enhancing formal industry that deals with issues like mining, building, food and beverages, electronics, chemical and allied, energy, electrical, consultancy services , skin and footwear, metallic and automotive, pharmaceutical & medical equipment, paper and board, furniture, agriculture/fresh yield, plastics and rubber, textiles and apparel, and timber. 80% of KAM members are established in Nairobi and others are extended to other regional sections of Coast, Nakuru, Machakos Eldoret, & surrounding regions, Nyanza/Western, Kiambu, as well as the Industrial Area.

Based on the Economic Survey of 2020 by Kenya National Bureau of Statistics (KNBS), the real value added for manufacturing sector rose by 3.2% in comparison to a 2018's 4.3% revised growth. In 2019, output volume rose by 2.0% from a revised growth of 5.6% in 2018. This has been linked to rising production of automobiles, trailers as well as semi-trailers; plastics; fats and oils of animals and vegetables; as well as subsectors of pharmaceuticals. Based on the Economic Survey of 2019 by

KNBS, manufacturing industry real value added improved by 4.2% in 2018 relative to a 0.5% revised growth in 2017. The segment's performance was largely supported by Agro processing activities and production of beverages. The Kenyan Economic Vision pillar 2030 is forecasting to raise the GDP growth rate by at least 10% per year by focusing on the industrial sector and the same time make Kenya an Industrial Hub for the Africa continent. In order to achieve this, there is need to push for Kenya products, strengthen production capacity, incorporate the use of Research and Development (R&D), increase the regional market share by 8% from 7 to 15% and produce output that satisfy existing and new markets as noted by the Kenya 2030 Vision, first medium term strategy and second medium term plan of 2008 – 2012 and 2013 – 2017 respectively.

Manufacturing also is a four-point agenda by President Uhuru Kenyatta, outlining how it will grow the economy and increase the GDP from 9.2% to 20 % of GDP by 2022. This will help foster the achievement of Kenya Vision 2030 aspiration at the same time help drive Third Medium Term. Kenya through the Industry, Trade and Cooperatives Ministry has launched Industrial Transformation Programme, a 10-year plan to revive the manufacturing and industrial sector and to acts as a guidance for the country to achieve industrialization. The ministry will be in charge of implementing the strategies that are the launching of sector-specific flagship, generating a conducive environment which will increase the rate of industrial development via industrial zones together with technical skills, infrastructure corridors, ease of conducting business, supporting infrastructure and driving results.

The pandemic novel coronavirus (COVID-19) has affected the manufacturing sector in the country. With this both the government and private sector have come with measures of containing the virus outbreak and economic recovery which can simultaneously hamper business continuity due to disruptions brought about by these measures.

According to the KAM, challenges facing the industrial sector in the country comprise corruption, lack of predictable and steady industrial policies, expensive and complex transport and logistics system. According to Koech and Ronoh (2016), problems facing

the implementation of the SCM in manufacturing Kenyan Sector including biased information within the chain; challenges in decision making; high operation costs; taxation; high fuel prices. This study will focus on the multinational manufacturing firms that are based in the Nairobi County.

1.2 Research Problem

According to Hammer (2001), there is need of organizations to integrate their processes between the firms and streamline cross-company processes in order to gain from lowering costs, enhancing quality, and accelerating operations. Additionally, for survival, they need to change their business approach by closely collaborating with partners. Through Supply Chain Integration (SCI) organizations reduce operational costs, ensure efficiency in the operations and improve the level of service. When organization do not incorporate SCI in their operation, it leads to the performance and operational inefficiencies of supply chain is reduced (Lambert, 2004).

Manufacturing firms have incorporated the need of having accommodating and reciprocally beneficial supply chain partnerships due to the increasing global competition (Braunscheidel & Suresh, 2009). However, there are encounters facing SCI. Lack of trust between associates of the supply chain within an organization leads to fruitless cooperation within the supply chain link thus problematic in cooperation (Fawcett, Jones & Fawcett, 2012) The lack of a common goal and interests within the partners also inhibits integration (Sambasivan, Siew-Phaik, Mohamed & Leong, 2011). Kaminsky and Simchi-Levi (2009) observed poor performance, high operation costs, reduced level of service, low resources utilization, and inadequate response to customers' expectations are because of lack of supply chain integration in organization activities. Therefore, the necessity of manufacturing organizations integrating their supply chains.

According to Morten J. (2003), global integration to Multi-National Company (MNC) is important as it provides them with ability to differentiate their market products, access capital easily, transfer knowledge in terms of innovation within the firm, and at the same time manage any economic and political environment uncertainties in different countries. Despite the organization working as a system, a challenge may face

one member of the supply chain and this will eventually affect other members leading to lack of integration in the organization. Thus, more consideration should be given the supply chain collaboration among the members so as to avoid any inefficiencies in the organization.

Despite SCI research been conducted in manufacturing firms, little is known about Supply Chain Integration (SCI) issues among Kenyan multinational manufacturing firms. This research gap shows that the study of SCI issues among multinational manufacturing companies in Kenya is very important. Several studies have been conducted to examine and understand operational performance and SCI. Globally, Aduku & Ayertey, (2015) carried out a study on supply chain management integration and its influence on the performance in Ghana's hospitality sector. Findings showed that hotel performance is positively influenced by SCI dimensions which have positive impact on hotel performance. Yuen & Thai, (2016) investigated the correlation concerning SCI and operational performance with an emphasis on priorities and synergies. The key finding was that external SCI components have stronger influences on organizations' operational performance. Kumar (2017) investigated the effects of SCI on Performance of the United Kingdom Food Sector and found out that, the two variables relate positively.

Locally, Katua (2014) conducted a study based on supply integration on performance of supply chain focusing on Kenyan huge manufacturing firms. Findings showed organizations support sharing of information such as marketing and that lowered total cycle time and lowering total logistics costs and this impacts supply chain performance. Owino (2015) conducted research on SCI and organizational performance and focused on Kenyan commercial banks. The results were that reverse logistics enabled commercial banks to control risk associated with suppliers' operations, bank stresses appropriate utilization of its products by its customers and that banks share management techniques with their suppliers in the industry. In another related study, Mbaisi (2016) investigated factors that affect supply chain integration in large Kenyan manufacturing companies. She established that these firms continuously consult their suppliers and they have a strategic partnership.

From the above reviewed studies, the area of multinational manufacturing in Kenya has not extensively been researched and therefore, this study bridged this gap by responding to the following research questions; What is the degree of Supply Chain Integration implemented by multinational manufacturing firms in Kenya and methods adopted among the multinational Kenyan manufacturing firms? What is the effect of the Supply Chain Integration on operational performance among multinational manufacturing organizations in Kenya?

1.3 Objectives of the Study

The key objective of the study was to establish the effects of supply chain integration and its application on operational performance among multinational Kenyan manufacturing firms.

The following objectives guided the study:

- i. To establish the extent and methods of Supply Chain Integration among multinational firms in the Kenya's manufacturing industry
- ii. To find out the effects of the SCI approaches on operational performance among multinational firms in the Kenya's manufacturing industry.

1.4 Value of the Study

Manufacturing sector is an essential social-economic improvement in the nation. The investigation will be beneficial to numerous stakeholders and will make several contributions. Findings will allow management of the various multinational manufacturing firms in Kenya recognize key factors and approaches to consider while considering to implement Supply Chain Integration practices in their processes and network to ensure optimal and successful use of the limited resources. To other organizations which are not manufacturing firms, the findings will help them learn and appreciate the impact of SCI to operational performance.

To scholars and academicians, this research study will assist them in carrying out additional and connected studies. Findings and recommendations from the study will

offer new data and understanding the relation between SCI and operational performance among the multinational Kenyan manufacturing sector. They also receive new insights in new concepts and the interplay between concepts of integration. This study will also provide a platform for peers and academic professionals to review, critique and comment with a view to enhance research around this area of interest.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter concentrated at what has been suggested by several authors concerning integration of supply chain partners. It will cover theoretical foundation of the study, supply integration approaches, Supply Chain Integration approaches on operational performance among multinational Kenyan manufacturing firms, as well as the conceptual model.

2.2 Theoretical Literature Review

This segment discusses theories applicable to the research which clarify largely the relations between the operational performance and SCI. The study focuses on three most relevant theories, namely; Relational View Theory (RV), Resource Based View (RBV) and Resource Dependence Theory.

2.2.1 Resource Based View

Resource Based View (RBV) theory advocates that organizations are composed of a mixed resource which enables firms to differentiate themselves. Penrose (1959) observed that firms differentiate themselves through exceptional internal resources and making them to strive. The theorists of the RBV theory argue to be competitive in the market, firms need a mix of resources (Barney, 1991; Peteraf, 1993). According to Dyer & Singh, 1998, firms need to combine resources which are its core competence in different ways and unique from other organizations that ought not do it to achieving a competitive edge.

The theory emphasizes that supply chain associates need to combine different mix of resources in order to ensure the company operate efficiently. Thus, this theory suggests that in order to enhance OP there is need of combining a mix of the firm's resources so as to attain competitive advantage over competitors by integrating the supply chain members.

2.2.2 Relational View Theory

Relational View Theory (RV) advocates that there is need to have a relationship in the firm given that the resources that generate the organization's competitive advantage

may originate externally and internally. (Dyer & Singh, 1998; Arya & Lin, 2007; Lavie, 2006)

Dyer & Singh (1998) noted that an organization can generate relationship through asset investment, information sharing, combining of matching resources, and effective governance mechanisms. The theory states that firms can attain profit through individual relationships with their partners. Thus, there is need of having collaboration between the supply chain member and the organization to have an effective SCI which leads to an effective OP.

2.2.3 The Resource Dependence Theory

Resource Dependence Theory states that to sustain their survival in the long run firms need to acquire resources from their own environment and usually there is competition from other organizations on the same resources (Pfeffer & Salancik, 1978). To prevent the competition of the limited resources, reduce uncertainty in accessing resources, and ensure continuation free flow of resources, organizations and supply chain partners need to collaborate and form strategic partnerships (Pfeffer & Salancik, 1978). Mitchell & Singh, 1996 noted that through collaborations organizations are able to freely access resources, eliminate their shortcomings in being able to obtain resources and prevent their competitors getting stronger with the resources they have acquired.

Thus, this theory suggests that organizations need to form strategic alliances to prevent competition and access the resources from the environment so as to improve operational performance.

2.3 Supply Chain Integration

Supply Chain Integration is composed of external and internal integration. The external integration is further divided into supplier and the customer integration, as discussed below.

2.3.1 Supplier Integration

Supplier Integration (SI) is the practice where organizations collaborate and interact with suppliers in ensuring an effective flow of the supplies. Referring to Vijayasarathy (2010) it involves organization collaborating with the upstream

suppliers. In accordance to the study done by Petersen (2005), organizations are able to source for information from suppliers and help in decision-making process. In line to the study of Danese (2013), suppliers offer information to organization on the company's production schedule, quality, design, and direct quality improvement programs. This aims to help the organization have an efficient operation by ensuring the smooth stream of materials and avoid hurdles in the procurement and production process. Therefore, organizations are able to develop collaborations with suppliers which can be used to collaboratively exchange knowledge and information.

Koufteros, Vonderembse and Jayaram (2005), Nagamachi, Liker, Kamath and Watsi (1996) and Ragatz, Peterson and Handfield (2002) studies found out that for an organization to be considered to have an effective supplier integration, it should link its information systems with suppliers to ensure free flow and real-time access of information. Integration between the organization and supplier progresses operational performance objectives of flexibility, distribution, cost and the quality (Wong Boonitt, & Wong, 2011).

2.3.2 Customer Integration

Westbrook and Frohlich (2001) found out that Customer Integration is the means by which organizations relate with customers to get their response about the goods and service offered. Referring to Fisher, Hammond and Obermeyer (1994), customer integration (CI) purposes in enlightening demand planning and visibility in organizations. In accordance to the study of Kim (2013), customer integration encompasses using customers to recognize and clarify their needs and produce products that meet them and maximize their expectations and satisfaction.

The study done by Lotfi, Sahran, Zadeh and Mukhtar (2013), customer integration comprises organizations integrating opinions from customer in their production process and making sure the link between the customer and manufacturer is efficient and effective. Kim (2013) avers that the accuracy of information about customer demand aids the organization to advance forecasting and reduce the total inventory costs. Customer integration helps organizations to understand customers' needs, tastes and preferences (Frohlich & Westbrook, 2001; Swink, Narasimhan & Wang, 2007)

2.3.3 Internal Integration

Kim (2013) noted that Internal Integration (II) involves the process of merging and developing an internal system where information can be generated and knowledge and material shared within the organization, individuals and departments. It involves collaborating among and across departments and functions so as to fulfill the customer's needs. According to Kahn and Mentzer, (1996) II involves inter-departmental association by involving departments together which enables organization to work as a system.

An efficient internal integration in an organization equates to well integrated suppliers and customers link (Kanter, 1994). Internal integration involves different departments from raw materials to transformation and distribution of the output to the market and customers (Ayoub, Abdallah, and Suifan,2017). Stevens (1990) noted that for an efficient internal integration, there is need for coordination among different functions and departments in organizations so as to ensure achievement of customer value and satisfaction.

2.4 Supply Chain Integration and Operational Performance

There are various studies carried out that show SCI improves operational performance of organizations. Study done by Frohlich and Westbrook (2001) has shown that organizations that incorporate collaborations with both customers and suppliers usually end up having an effective performance in their operations. Supplier integration collaborates the firm's functions to meet customer requirements (Kim and Narasimhan, 2002) and at the same time respond to market changes (Zhao, Huo, Sun, and Zhao 2013). Supplier integration involves coordination, sharing of information, contracts that are long term in nature, sharing information system, and encouraging continuous improvement in quality. With these it facilitates sharing of knowledge, better-quality decision making, thus improved operational performance (Echtelt, Wynstra, Weele, and Duysters, 2008).

Customer integration involves integrating ways of solving customer problems, improving customer satisfaction, managing customer's complaint, and establishing customer relationships (Sousa, 2003). Customer integration improves operational

performance in organizations through their involvement in providing of better worth products at a more flexibility and lower cost to respond to customer's demand (Flynn et al., 2010). According to Swink et al. (2007) observed integrating through clients entails interaction with customer and the evaluation of customer satisfaction. Thus, exchanging quality information leads to better operational performance like customer service, cost improvement, flexibility, and quality (Mason-Jones and Towill, 1997).

Internal integration enables the organization to carry out its activities as a set of a system and employees to optimize operations (Yu, 2015). It also helps the organization minimize total costs, waiting time, increase process flexibility, ensuring that the supply chain is responsive and efficient, thus enabling effectiveness in an organization's performance (Dröge, Jayaram & Vickery 2004; Narasimhan & Kim 2002; Zhang & Huo 2013).

Joint decision making and common goals permit an organization to respond to the marketplace changes that reduce total costs, improve process flexibility and the lead times. Integration among purchasing and production departments additionally can prompt up evaluation of supplier, selection and development, increase logistics and production planning and ensuring that the supply chain is responsive and efficient that improves organization performance (Narasimhan and Kim 2002; Dröge, Jayaram, and Vickery 2004; Zhang and Huo 2013). Findings from Sawhney (2006) indicate that internal integration facilitate the transfer of knowledge leading to improved coordination in the organization thus flexibility in the firm's operations.

2.5 Empirical Literature Review

Implementation of the SCI in organizations leads to effective cooperation, better performance, increased profits and ensures needs of customers are met and satisfied. Effective supply chain is necessitated when organizations have free flow of materials and information (Samaranayake, 2005). Stank, Keller, and Closs (2001) noted that SCI facilitates firms to bring into line their internal business activities with members of its supply chain to minimize costs, increase performance and customer service.

Several research studies have been conducted both locally and globally. Globally, Yuen & Thai (2016) investigated the association between SCI and the OP by focusing on Singapore's container shipping companies with an aim of establishing the influence that SCI approaches have on performance of the firm and to examine potential synergies from the interactions between internal and external SCI components. Data was collected from container shipping companies in Singapore with a total of 702 invitations being sent and 174 completed surveys and response rate of 24.8% was achieved. From the findings SCI approaches improve operational performance of the firms, external SCI components have stronger influences on firms' operational performance, and that additional contribution to operational performances can result from the interaction between similar SCI components.

Osei and Kagniciogu (2018) researched the effects of SCI and organizations performance in Turkey's food retail sector to identify effects of SCI approaches on OP and firms' business. The study focused on Istanbul and Eskişehir cities in Turkey given the availability of major food retailers. Data gathering was performed using questionnaire which was distributed to 216 firms with 208 firms having responded. Findings from the study were that there was an existing relation between SCI approaches on the business and OP of food retail firms.

Pakurár, Haddad, Popp, Khan and Oláh (2019) studied SCI impact on the organizational performance among the Jordanian banks by establishing SCI impact on performance of an organization through balanced scorecard and made use of both correlation analysis and descriptive. 200 questionnaires were distributed to 27 banks with 33 of them being unreturned, missing data led to elimination of 55 of them and 112 were considered for the study. Findings showed that greater supply chain integration increased banking sector performance in Jordanian and that performance of the organizations is influenced using supply chain integration.

Atnafu (2015) investigated the influence of SCI on OP with a focus on the chemical industry in Ethiopia. The objective being to inspect the result of SCI on operational performance. Collection of data was done using questionnaires and the use of descriptive and non-parametric statistical figures was employed to analyze data.

Results established that supply chain integration positively influenced operational performance.

Locally, Katua (2014) investigated how SCI impacts supply chain performance on large Kenyan manufacturing organizations by exploring SCI influence connecting to the performance of Kenyan manufacturing firms. The population was listed manufacturing organizations under KAM and operating in Nairobi. Data was collected using questionnaires and made use of descriptive research design. Out of 60 respondents, 49 completed the questionnaire resulting to 82% response rate. Findings showed that organizations promote sharing information like marketing which lowers total cycle time and lowering total logistics costs impacts supply chain performance.

Owino (2015) researched on organizational performance and SCI of the Kenyan commercial banks through Supply Chain Integration Practices by establishing degree of supply chain integration among the Kenyan commercial banks, influence and challenges. Questionnaires was used in the 42 commercial banks data collection in Kenya and later analyzed using SPSS. In finding out the correlation between the demographics, SCI and organizational performance, regression analysis was used. Findings showed that reverse logistics enabled the commercial banks to control risk associated with suppliers' operations, bank stresses appropriate utilization of its products by its customers and that banks share management techniques with their suppliers in the industry; that the speed of service delivery has been enhanced due to the collaboration of the process involved; and service delivery to customers has been achieved at a reduced cost due to Supply Chain's integration. Integration of technology, people, processes and business has improved banks performance as the customers of the banks have adopted latest technological mechanisms of transactions such as m-banking, internet banking and agency banking which all rely on technology. The challenges faced by the banks in integrating purchasing and maintaining cost of the operating systems like electronic data interchange.

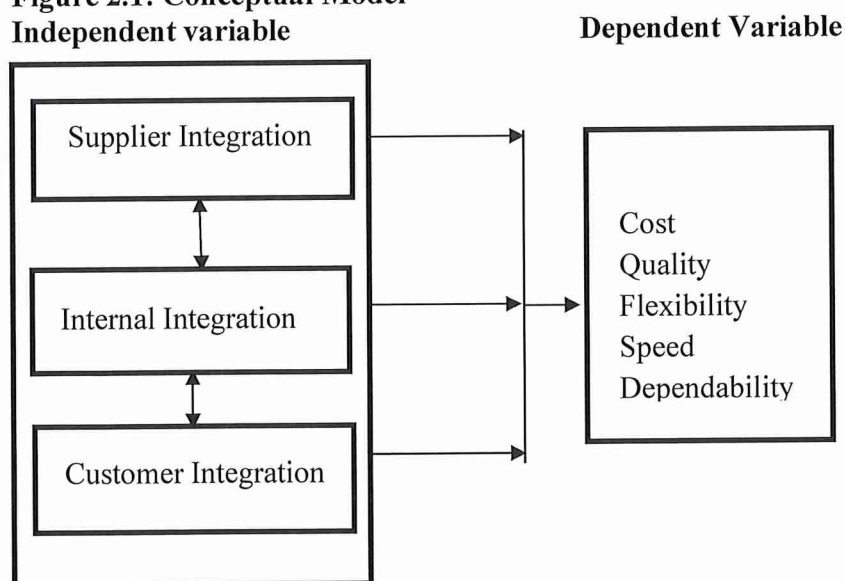
Mbaisi (2016) investigated issues influencing supply chain integration in the large Kenyan manufacturing organizations with an aim of determining the scope of integration and establishing challenges touching SCI in large Kenyan manufacturing

firms. Descriptive research design and survey method collect data from all large Kenyan manufacturing firms was used in the study. Findings showed that there occurs a strategic partnership in large industrial firms and they continuously communicate and share information and knowledge with their suppliers, and they are aware of customer requirements. Supply chain integration is influenced to a great degree by service delivery, competition, operative efficiency as well as customer satisfaction. There is an existing substantial positive relation between the implementation of SCI, service delivery and customer satisfaction which leads to increase of SCI implementation.

2.6 Conceptual Framework

This study used independent variables as the SCI whereas, the dependent variable was operational performance. This research study examined both SCI and the OP among multinational manufacturing organizations in Kenya by investigating the relationship between the independent variables that include customer, supplier, and internal integration with O.P objectives of cost, quality, flexibility, speed and dependability as the dependent variables. The conceptual model below as illustrated in Figure 2.1 describes how the different of supply chain integration approaches affect operational performance,

Figure 2.1: Conceptual Model



Source: Researcher (2020)

The hypotheses that were tested are as below;

H1: A positive relationship exists between supplier integration and operational performance.

H2: A positive relationship exists between internal integration and operational performance.

H3: A positive relationship exists between customer integration and operational performance.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This research chapter presents an outline of the methodology used in the investigation. In this chapter several sections including research design, population of study, method of collecting data, data analysis as well as presentation are covered.

3.2 Research Design

This study adopted a “descriptive research design” as it helped the researcher to find out the impacts of SCI on OP among multinational industrial organizations in Kenya. According to Waliman (2011) it attempts to examine the situations in order to describe the norm. To establish the link between the parameters a cross sectional design was also used.

3.3 Population

The research population are multinational manufacturing firms in Nairobi, Kenya.” According to KAM manufacturing directory, there are 46 of them and since this population is not too large, a census was carried out. (appendix II)

3.4 Data Collection

The research made use of primary data that was gathered via structured questionnaire which was designed a survey as well as composed of both open as well as close-ended, qualitative and quantitative questions.

The questionnaire utilized the application of coding that were obtained from the five-point Likert-type scale to assess attitudes (Likert, 1931). According to Maurer and Pierce (1998) the Likert rating scale measurement is valuable and dependable tool for assessing self-efficacy. The questionnaire intended to address the research objectives. The questionnaire had three segments. Part I, covering the demographic information of the firm and respondent; Part II, covered extent of SCI among the multinational manufacturing organizations in Kenya; and Part III, covered the outcome of the SCI approaches on operational performance. Target participants were the procurement managers or their counterparts given that they are conversant with SCI.

In light of the current COVID-19 pandemic, which fostered virtual engagement and social separation. The researcher used web-based surveys that were given to various responders via email.

3.5 Data Analysis

The figures collected from the data using the questionnaire were checked for completeness to ensure that they are correctly filled and fit for analysis. The data collected was there after entered into SPSS and examined based on descriptive statistics of the percentages, mean scores and ratios. To establish whether or not there is a association between SCI and OP among the multinational manufacturing organizations in Kenya, a regression analysis being utilized. The following is the regression model:

$$Y_1 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \alpha$$

$$Y_2 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \alpha$$

$$Y_3 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \alpha$$

$$Y_4 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \alpha$$

$$Y_5 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \alpha$$

Where: Y is the dependent variable i.e., operational performance

Y1 = Cost, Y2 = Quality, Y3 = Flexibility, Y4 = Speed, Y5 = Dependability

β_0 is the regression intercept,

β_1 , β_2 , and β_3 are the slopes of the regression equation,

X1 is Supplier Integration, X2 is Internal Integration, and X3 is Customer Integration.

The table below shows how the data to be collected will be analyzed;

Table 3.1: Summary of Data Collection and Data Analysis

Objectives	Questionnaire	Data Analysis
Demographic Information.	Part I	Descriptive statistics
To determine the extent and methods of SCI among multinational companies in Kenya's manufacturing industry.	Part II	Descriptive statistics
To determine the effects of the SCI approaches on OP among multinational companies in Kenya's manufacturing industry.	Part III	Correlation and Regression Analysis.

Source: Researcher (2020)

CHAPTER FOUR: PRESENTATION AND ANALYSIS OF RESEARCH

FINDINGS

4.1 Introduction

This chapter exhibits the findings from the research. The general information section, which includes response rate and demographic data, is one of the sections in this chapter. The descriptive as well as inference statistics are also discussed in line with the research objectives in this chapter.

4.2 Response Rate

Information on the rate of response for this research is displayed in Table 4.1.

Table 4.1: Response Rate

Response Rate	Frequency	Percent
Returned	36	78.3
Unreturned	10	21.7
Total	46	100

Source: Research Data (2020)

Table 4.1 showcases those 46 questionnaires were delivered to operational managers in each of the 46 multinational companies in Kenya. According to the results, only 36 of the 46 questionnaires distributed to the particular participants received satisfactory responses and were returned, resulting in a 78.3 percent research response rate. This agrees with Neil (2009), who indicated that research with a 70 percent response rate or higher is adequate for analysis and drawing conclusions.

4.3 General Information

This part comprises descriptive statistics for all respondents' demographic characteristics as well as background information on the firm.

4.3.1 Gender

It was urged on the target respondents to state their gender. According to the results, 55.6 percent of respondents were male, whereas the remaining 44.4 percent were female. The fact that there is no significant difference in the number of male as well

as female employees amongst the target participants shows that multinational manufacturing enterprises value gender diversity. This indicates that the research is free of gender bias. Table 4.2 is a summary of the findings.

Table 4.2: Gender

Gender	Frequency	Percentage
Male	20	55.6%
Female	16	44.4%
Total	36	100%

Source: Research Data (2020)

This finding on gender reveal that multinational manufacturing firms in Kenya uphold gender diversity in their recruitment and selection process as well as promotions as more than a third of the respondents was women. Gender diversity is important in an organization as it enables diverse ideas and this leads to better performance.

4.3.2 Qualification

The respondents were beseeched to specify their level of education which they have attained. The results are illustrated in Table 4.3. Results demonstrate that the largest proportion (66.7%) were postgraduates whereas 33.3% possessed bachelor degrees. None of the responders had a doctorate, although they all had a bachelor's degree.

Table 4.3: Highest Level of Education

Education	Frequency	Percentage
First Degree	24	66.7%
Masters	12	33.3%
Total	36	100%

Source: Research Data (2020)

The results suggest that global manufacturing companies in Kenya are eager to hire educated employees. In most instances, a high level of education is linked with competency and grasp of the skills required to complete one's work duties. This would mean that the selected respondents understood the operations of their respective

firms well and were better placed to respond on supply chain integration effect on operational performance.

4.3.3 Department

In line with the target respondents of the study, many respondents were in supply chain departments in their multinational manufacturing firms, constituting 58.3% of the responses. The rest (41.7%) were quality assurance managers as depicted in the Table 4.4.

Table 4.4: Role in the Firm

Department	Frequency	Percentage
Supply Chain	21	58.3%
Quality Assurance	15	41.7%
Total	36	100%

Source: Research Data (2020)

The nature of respondents targeted in this study was crucial in achieving the research objectives as supply chain managers and quality assurance managers are deemed to be better placed in understanding how SCI interacts with operational performance.

4.3.4 Years in Current Position

Employees had been in their current position for a variety of years. The results indicated that 41.7% had currently worked in their position for 11-15 years, 36.1% for 6-10 years, 11.1% for 1-5 years and 11.1% for over 16 years.

Table 4.5: Work Experience with Current Employer

Work Experience	Frequency	Percentage
1-5 years	4	11.1%
6-10 years	13	36.1%
11-15 years	15	41.7
Over 16 years	4	11.1%
Total	36	100%

Source: Research Data (2020)

The amount of time spent with a company can be applied to assess their knowledge of

internal organizational processes, competencies, and success. The fact that most respondents 88.9% had stayed in their current position implies that they understood their organization well and therefore best placed to answer questions relating to SCI and operational performance.

4.3.5 Age

The investigator was also concerned in establishing the respondent's age. Table 4.6 gives an illustration of the results. Results illustrate that the main percentage of participants (44.5%) aging between 31-40 years, 22.2% age bracket was 41-50 years and the same case applies to 51 and above age bracket while the least percentage (11.1%) were between 18-30 years.

Table 4.6: Total Work Experience

Age	Frequency	Percentage
18-30	4	11.1%
31-40	16	44.5%
41-50	8	22.2%
51 and Above	8	22.2%
Total	36	100%

Source: Research Data (2020)

The outcomes suggesting majority of employees in the multinational manufacturing companies are comparatively young. Being young implies more energy in conducting one's duties and also the likelihood of being with the current employer for a longer period of time. It would also mean a better understanding of the questions asked in this research study.

4.4 Descriptive Statistics

The descriptive results for all variables under investigation are presented in percentages, means, as well as standard deviations in this subsection.

4.4.1 Supplier Integration

Table 4.7 displays the mean and standard deviation for the specific features of supplier integration. The results demonstrates that multinational manufacturing companies have embraced supplier integration to a significant degree. The fact that the mean

ratings for qualities linked to supplier integration were more than 3 on a five-point Likert scale supports this.

The respondents agreed that strategic partnerships are there between them and suppliers, the organizations offer training to their suppliers, the organizations factor in views of their suppliers, supplier association has helped in refining procurement management and that the organizations share information with suppliers. Further, the respondents also agreed that their organization holds regular meetings with suppliers to review the business issues, the suppliers meet the organization's required specifications such as inputs, the organization's information system are linked with those of suppliers and that there is rapid ordering system with chief supplier. The statement that the suppliers meet the organization's required specifications such as inputs had the highest mean implying the most agreement while the statement that the organization considers the views of their suppliers had the lowest mean.

Table 4.7: Descriptive Statistics for Supplier Integration

Statement	N	Mean	Std. Dev
Strategic partnerships exist between them and suppliers.	36	3.95	0.93
The organization trains its suppliers.	36	3.86	1.15
The organization considers views of their suppliers.	36	3.24	1.32
Supplier connection has helped in improving procurement management.	36	4.04	1.00
The organization shares information with its suppliers.	36	3.75	1.08
The organization holds regular meetings with suppliers to review the business issues.	36	3.52	1.29
The suppliers meet the organization's required specifications such as inputs.	36	4.24	0.55
The organization's information system are linked with those of our suppliers.	36	4.21	0.73
There is quick ordering system with major supplier.	36	4.03	0.63
Average		3.87	0.97

Source: Research Data (2020)

4.4.2 Internal Integration

The mean and standard deviation for the specific attributes of internal integration are as presented in Table 4.8. Outcomes demonstrate that the multinational

manufacturing firms offered internal integration to a significant degree. The fact that the mean ratings for qualities related to internal integration were more than 3 on a five-point Likert scale supports this.

The respondents agreed that amongst the functional units, or business units or department there existed internal linkages, there is strong integrative inventory management, also enterprise application integration existed amongst the internal functions and that the organizations encourages the using cross functional teams in order to improve the process. Further it was evidenced that the department plans and objectives are set jointly, the activities in different department are centrally coordinated, there is information exchange across different departments, real-time searching for inventory level has been instigated and in the production process there is data integration. The statement that there is information exchange across different departments had the highest mean.

Table 4.8: Descriptive Statistics for Internal Integration

Statement	N	Mean	Std. Dev
There is presence of internal linkages among the departments, functions, or business units within the firm.	36	4.08	0.63
There is strong integrative inventory management.	36	4.04	0.88
Internal functions have Enterprise application integration.	36	3.65	0.96
In process improvement, the company advocates the usage of cross-functional teams.	36	3.60	1.11
The department plans and objectives are set jointly.	36	3.94	1.02
The activities in different department are centrally coordinated.	36	4.08	0.93
There is information exchange across different departments.	36	4.21	0.69
Real-time searching of the level of inventory has been implemented	36	4.03	0.63
There is data integration in production process	36	4.03	0.52
Average		3.96	0.82

Source: Research Data (2020)

4.4.3 Customer Integration

The mean as well as standard deviation for the specific aspects of customer integration

are as displayed in Table 4.9. The findings show that multinational manufacturing companies adopt customer integration to a large extent. The fact that the mean scores for qualities linked to customer integration were more than 3 on a five-point Likert scale supports this.

Table 4.9: Descriptive Statistics for Customer integration

Statement	N	Mean	Std. Dev
The organization has a computerized system for ordering customer.	36	3.43	1.35
The organization uses of effective communication with customer.	36	3.23	1.47
Customer needs and satisfactions are our competitive strategies.	36	3.25	1.38
The organization makes use of different internet platforms to engage with customers.	36	4.00	0.55
The organization invites customers to participate in the design of new products and services.	36	3.91	0.67
The organization shares available inventory with the major customers.	36	3.82	0.80
Customer feedback is used to improve customer relations, processes, products and services	36	3.85	0.78
Customer data is systematically collected into an integrated database.	36	3.97	0.58
The organization uses systematic processes for handling complaints	36	3.82	0.83
Average		3.70	0.93

Source: Research Data (2020)

The descriptive statistics concerning customer integration disclose that the companies make use of different internet platforms to engage with customers, the organizations invites customers to participate in the design of new products and services, the organizations shares available inventory with the major customers and that customer feedback is applied in improving the relations of customers, products or services and processes. Further, the organizations have a computerized system for ordering customer, they maximize effective communication with client, customer needs and satisfactions are their competitive strategies, customer data is systematically assembled into an integrated database and that the organizations make use of a systematic processes to handle complaints.

4.4.4 Extent of Supply Chain Integration

The mean and standard deviation for the specific attributes of SCI are as presented in Table 4.10. Outcomes illustrates that internal integration was the most adopted SCI, followed by supplier integration while customer integration is the least adopted dimension of SCI as shown by the lowest mean.

Table 4.10: Extent of Supply Chain Integration

Dimension	Mean	Std. Dev
Internal integration	3.96	0.82
Supplier integration	3.87	0.97
Customer integration	3.70	0.93

Source: Research Data (2020)

These results imply that multinational manufacturing firms have given a priority to internal integration which is the process and practice of amalgamating and evolving internal resources for sharing information and knowledge within and outside the organization functions with an aim of helping external integration and accomplishing goals. It is critical for firms to first develop internal integration as this goes a long way in enhancing external integration in terms of both suppliers and customers. Supplier integration was also found to be more implemented than customer integration and this can be clarified by the reality that the suppliers represent the source of materials used to produce the final products and therefore they come first. It is only after the supplier process is integrated that customer integration becomes of value.

4.5 Supply Chain Integration and Operational Performance

Multiple linear regression analysis being performed in determining the impact of SCI on OP. Five regression models were run as the study had five measures of operational performance namely; cost, quality, flexibility, speed and dependability.

4.5.1 Supply Chain Integration and Cost

The research's second objective was to find out the outcome of SCI approaches on OP of Kenyan multinational manufacturing firms. On all of the operational performance metrics in the study, multiple regression was applied. The regression analysis with cost as the dependent variable is summarized in Table 4.11:

Table 4.11: Regression Coefficients on Cost

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
	B	Std. Error	Beta			
	(Constant)	.266	.382		3.357	.000
1	Supplier integration	.274	.075	.330	3.646	.000
	Internal integration	.179	.075	.204	2.376	.019
	Customer integration	.199	.085	.192	2.346	.021

a. Dependent Variable: Cost

Source: Research Data (2020)

$$Y=0.266+0.274X_1+0.179X_2+0.199X_3$$

From the table above it is evident that a positive and statistically significant association amongst cost and supplier integration ($t=3.646$, $p=0.000$), internal integration ($t=2.376$, $p=0.019$) as well as customer integration ($t=2.346$, $p=0.021$) at a significance level of 0.05, all met the test conditions ($t \geq 1.96$, $p \leq 0.05$). The beta value $\beta_1 = 0.274$ indicates that an increment with a unit in supplier integration will result in 0.274 unit decrease in cost while $\beta_2 = 1.79$ implying an increment in internal integration by one unit will yield a decrease in cost by 1.79 units. Contrary, $\beta_3 = 0.199$ suggests that an increment in customer integration by one unit translates to 0.199 units alteration in cost.

Table 4. 12: Model Summary on Cost

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.640 ^a	.409	.362	.41245

a. Predictors: (Constant), Supplier integration, internal integration, customer integration

Source: Research Data (2020)

Table 4.12 shows that the R squared is 0.409, meaning that changes in the predictor variables can account for 40.9 percent of the variation in cost dimension of operational performance. Other variables could potentially explain cost changes; these variable(s) account for the remaining 59.1 percent of the model's unexplained variation.

Table 4.13 ANOVA Table on Cost

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.897	3	1.474	8.666	.000 ^b
	Residual	8.506	32	.170		
	Total	14.402	35			

a. Dependent Variable: Cost
b. Predictors: (Constant), Supplier integration, internal integration, customer integration

Source: Research Data (2020)

The outcomes of if the model was a good fit are shown in Table 4.13. The independent variables are effective predictors of cost as a measure of operational performance, as shown in the table. This is demonstrated by p-value $0.000 < 0.05$ as well as an F-calculated (8.666) more than F-critical value (2.668) as a result, at a 95% confidence level, the whole model is statistically significant.

4.5.2 Supply Chain Integration and Quality

The research's second objective was to establish the outcome of SCI on operational performance of Kenyan multinational manufacturing firms. The research utilized multiple regression on all the operational performance metrics. The regression analysis with quality as the dependent variable is shown in Table 4.14.

Table 4.14 Regression Coefficients on Quality

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.751	.218		4.745	.000
	Supplier integration	.353	.161	.346	2.192	.037
	Internal integration	.513	.180	.376	2.851	.007

Customer integration	.621	.141	.539	4.391	.000
----------------------	------	------	------	-------	------

a. Dependent Variable: Quality

Source: Research Data (2020)

$$Y=0.751+0.353X_1+0.513X_2+0.621X_3$$

From the table above it can be seen that there is a positive as well as statistically significant association amongst quality and supplier integration ($t=2.192$, $p=0.037$), internal integration ($t=2.851$, $p=0.007$) as well as customer integration ($t=4.391$, $p=0.000$) at a significance level of 0.05, all met the test conditions ($t \geq 1.96$, $p \leq 0.05$). The beta value $\beta_1 = 0.353$ indicates that an increment of supplier integration with a unit will result in 0.35 unit increment in quality while $\beta_2 = 0.513$ infers that an increment in internal integration by one unit will yield a rise in quality by 0.513 units. Contrary, $\beta_3 = 0.621$ meaning an increment in customer integration by one unit will trigger a rise in quality of 0.621 units.

Table 4.15: Model Summary on Quality

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.743 ^a	.552	.511	.393552

a. Predictors: (Constant), Supplier integration, internal integration, customer integration

Source: Research Data (2020)

Table 4.15 shows that the R squared is 0.552, meaning that variations in the predictor variables may account for 55.2 percent of the variation in quality dimension of operating efficiency. Other variables may potentially explain changes in quality; these variable(s) account for the remaining 44.8 percent of the model's unexplained variation.

Table 4.16 ANOVA Table on Quality

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.214	3	2.053	13.258	.000 ^b
	Residual	6.660	32	.155		
	Total	14.874	35			

a. Dependent Variable: Quality

b. Predictors: (Constant), Supplier integration, internal integration, customer integration

Source: Research Data (2020)

The outcomes of if the model was a good fit are shown in Table 4.16. The independent variables are significant predictor of quality as an operational performance feature, as shown in the table. This is demonstrated by p-value $0.000 < 0.05$ as well as an F-calculated (13.258) more than F-critical value (2.668) As a result, at a 95% confidence level, the whole model is statistically significant.

4.5.3 Supply Chain Integration and Flexibility

The second objective of the research was to establish SCI outcome on operational performance of Kenyan multinational manufacturing companies. The research applied multiple regression on all the operational performance metrics. Table 4.17 depicts the regression analysis summary whereas using flexibility as the dependent variable:

Table 4.17 Regression Coefficients on Flexibility

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.609	0.243		2.505	0.013
	Supplier integration	0.208	0.073	0.219	2.858	0.005
	Internal integration	0.445	0.135	0.295	3.308	0.001
	Customer integration	0.736	0.101	0.596	7.291	0.000

a. Dependent Variable: Flexibility

Source: Research Data (2020)

$$Y = 0.609 + 0.208X_1 + 0.445X_2 + 0.736X_3$$

From the table above it is shown that a positive and statistically significant association amongst flexibility and supplier integration ($t=2.858$, $p=0.005$), internal integration ($t=3.308$, $p=0.001$) as well as customer integration ($t=7.291$, $p=0.000$) at a significance level of 0.05, all met the test conditions ($t \geq 1.96$, $p \leq 0.05$) exists. The beta value $\beta_1 = 0.208$ indicates that an increment in supplier integration with a unit will result in 0.208 unit increment in flexibility while $\beta_2 = 0.445$ implying an increment in internal integration by one unit will yield rise in flexibility by 0.445 units. Contrary, $\beta_3 = 0.736$ meaning an increment in customer integration by one unit yields a rise in flexibility of 0.736 units.

Table 4.18: Model Summary on Flexibility

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.747 ^a	.558	.544	.3855129

a. Predictors: (Constant), Supplier integration, internal integration, customer integration

Source: Research Data (2020)

Table 4.18 shows that the R squared is 0.558, meaning that changes in the forecaster variables may account for 55.8 percent of the variation in the flexibility component of operational performance. Other variables could possibly explain quality variations; these variable(s) account for the remaining 44.2 percent of the model's unexplained variation.

Table 4.19 ANOVA Table on Flexibility

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	17.808	3	5.936	39.942	0.000
	Residual	14.119	32	0.149		
	Total	31.927	35			

a. Dependent Variable: Flexibility

b. Predictors: (Constant), Supplier integration, internal integration, customer integration

Source: Research Data (2020)

The outcomes of if the model was a good fit are shown in Table 4.19. The independent

variables are significant predictor of flexibility as an operational performance feature, as shown in the table. This is demonstrated by p-value $0.000 < 0.05$ as well as F-calculated (39.942) more than F-critical value (2.668) As a result, at a 95% confidence level, the whole model is statistically significant.

4.5.4 Supply Chain Integration and Speed

The study's second objective was to uncover the outcome of SCI on operational performance of Kenyan multinational manufacturing firms. All operational performance measures were subjected to multiple regression in the research. The regression analysis with speed as the dependent variable is summarized in Table 4.20:

Table 4.20 Regression Coefficients on Speed

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.056	0.17		12.11	0.000
1 Supplier integration	0.226	0.057	0.285	3.938	0.000
Internal integration	0.144	0.059	0.172	2.43	0.016
Customer integration	0.168	0.037	0.379	4.559	0.000

a. Dependent Variable: Speed

Source: Research Data (2020)

$$Y = 2.056 + 0.226X_1 + 0.144X_2 + 0.168X_3$$

From the table above existence of positive and statistically significant association amongst speed and supplier integration ($t=3.938$, $p=0.000$), internal integration ($t=2.43$, $p=0.016$) and customer integration ($t=4.559$, $p=0.000$) at a significance level of 0.05, all met the test conditions. ($t \geq 1.96$, $p \leq 0.05$) is shown. The beta value $\beta_1 = 0.226$ indicates that an increment in supplier integration with a unit will result in 0.226 unit increment in speed while $\beta_2 = 0.144$ implying a rise in internal integration by one unit will yield an increment in speed by 0.144 units. Contrary, $\beta_3 = 0.168$ means that an increase in customer integration by one unit will yield a rise in speed by 0.168 units.

Table 4.21: Model Summary on Speed

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.791	0.625	0.621	0.29172

a. Predictors: (Constant), Supplier integration, internal integration, customer integration

Source: Research Data (2020)

Table 4.21 shows that the R squared is 0.625, meaning that differences in the forecaster variables can explain 62.5 percent of the variation in the speed dimension of operational performance. Other variables could potentially explain differences in speed; these variable(s) account for the remaining 37.5 percent of the model's unexplained variation.

Table 4.22 ANOVA Table on Speed

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	39.046	3	13.015	152.944	0.000
	Residual	23.402	32	0.085		
	Total	62.448	35			

a. Dependent Variable: Speed

b. Predictors: (Constant), Supplier integration, internal integration, customer integration

Source: Research Data (2020)

The outcomes of if the model was a good fit are shown in Table 4.22. The independent variables are good predictors of speed as an operational performance attribute, as shown in the table. This is demonstrated by p-value $0.000 < 0.05$ as well as an F-calculated (152.944) more than F-critical value (2.668) as a result, at a 95% confidence level, the whole model is statistically significant.

4.5.5 Supply Chain Integration and Dependability

The study's second objective was to uncover the outcome of SCI on operational performance of Kenyan multinational manufacturing firms. All of the operational performance measures were subjected to multiple regression in the study. The regression analysis with dependability as the dependent variable is summarized in

Table 4.23:

Table 4.23 Regression Coefficients on Dependability

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	0.609	0.243		2.505	0.013
1 Supplier integration	0.208	0.073	0.219	2.858	0.005
Internal integration	0.358	0.075	0.374	4.774	0.000
Customer integration	0.253	0.077	0.234	3.287	0.001

a. Dependent Variable: Dependability

Source: Research Data (2020)

$$Y=0.609+0.208X_1+0.358X_2+0.253X_3$$

From the table above it is evident of existence of a positive and statistically significant association amongst dependability and supplier integration ($t=2.858$, $p=0.005$), internal integration ($t=4.774$, $p=0.000$) and customer integration ($t=3.287$, $p=0.001$) at a significance level of 0.05, all met the test conditions ($t \geq 1.96$, $p \leq 0.05$). The beta value $\beta_1 = 0.208$ indicates that an increment in supplier integration with a unit will result in 0.208 unit increment in dependability while $\beta_2 = 0.358$ implying a rise in internal integration by one unit will yield an upsurge in dependability by 0.358 units. Contrary, $\beta_3 = 0.253$ meaning an increment in customer integration by one unit yields a rise in dependability of 0.253 units.

Table 4.24: Model Summary on Dependability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.679 ^a	.461	.450	.0281431

a. Predictors: (Constant), Supplier integration, internal integration, customer integration

Source: Research Data (2020)

Table 4.24 demonstrates that the value of R squared is 0.461, meaning that fluctuations in the predictor factors account for 46.1 percent of the variation in operational

performance dependability. Other variables could potentially explain variations in dependability; these variable(s) account for the remaining 53.9 percent of the model's unexplained variation.

Table 4.25 ANOVA Table on Dependability

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.125	3	.031	39.603	.000 ^b
	Residual	.147	32	.001		
	Total	.272	35			

a. Dependent Variable: Dependability

b. Predictors: (Constant), Supplier integration, internal integration, customer integration

Source: Research Data (2020)

The outcomes as to whether the model was a good fit are shown in Table 4.25. The independent variables are good predictors of dependability as an operational performance feature, as shown in the table. This is demonstrated by p-value $0.000 < 0.05$ as well as F-calculated (39.603) greater than F-critical value (2.668) as a result, at a 95% confidence level, the whole model is statistically significant.

Discussion of Findings

This research targeted on establishing the extent of supply chain integration among multinational manufacturing firms in Kenya and to examine the influence of SCI on operational performance among these firms. SCI was broken down into supplier integration, internal integration and customer integration whereas operational performance was operationalized with regards to quality, cost, flexibility, speed and dependability. The findings indicate that SCI have been embraced by multinational manufacturing firms to great extent and that this has significantly enhanced operational performance among these firms.

The findings of this study concurs with those of Yuen and Thai (2016) who investigated the association among SCI and the OP through a focus on Singapore's container shipping companies with aim of establishing the influence the SCI approaches on performance of the firm and to examine potential synergies from the

interactions between internal and external SCI components. From the findings SCI approaches improve operational performance of the firms, that external SCI components have stronger influences on firms' operational performance, and that additional contribution to operational performances can result from the interaction between similar SCI components.

The conclusions are too in conjunction with Osei and Kagniciogu (2018) who investigated the effect of SCI and organizations performance in Turkey's food retail sector to identify effects of SCI approaches on operational performance and firms' business. Findings from the study were that there was an existing relation between SCI approaches on the business and operational performance of food retail firms. This was also supported by Pakurár, Haddad, Popp, Khan and Oláh (2019) who investigated the impact of SCI on the organizational performance among the banks in Jordanian by establishing the impact of SCI on organizational performance through balanced scorecard and made use of both correlation analysis and descriptive. Findings showed that greater supply chain integration increased banking sector in Jordanian performance and that performance of the organizations is influenced using supply chain integration.

Locally, the results of the current study are in line with Mbaisi (2016) who investigated issues influencing supply chain integration in the large Kenyan manufacturing organizations with an aim of determining the scope of integration and establishing challenges affecting supply chain integration in large Kenyan manufacturing organizations. Findings showed that there occurs a strategic partnership in large industrial firms and they continuously communicate and share information and knowledge with their suppliers, there is a cross-functional integration in all supply chain initiatives and they are aware of customer requirements. Supply chain integration is influenced to a great degree by competition, service delivery, operational efficiency, and customer satisfaction. There is an existing substantial positive relation between the implementation of SCI, service delivery and customer satisfaction which leads to increase of SCI implementation.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this section, the previous section's results are summarized, conclusions are drawn, and the limitations of the overall study are explained. This chapter also includes recommendations for decision-makers and policy-makers. Eventually, the researcher makes recommendations for areas that can be researched further by other researchers.

5.2 Discussion of Findings

The research aimed at finding out supply chain integration effect on operational performance among multinational manufacturing firms in Kenya. The study also sought to establish the extent of supply chain integration among these firms. This study embraced a descriptive research design. The study targeted 46 respondents one from each of the 46 multinational manufacturing firms in Kenya. Data was gathered from 36 yielding a 78.3% response rate which was regarded adequate for this study. Respondents were given questionnaires to facilitate collection of primary data. Types of statistics used were descriptive and inferential. The descriptive analysis included mean and standard deviation. Inferential statistics included use of regression analysis.

This section provides the summary of the findings for each of the research objectives. The study also established the demographic characteristics of the respondents. The results showed that the gender distribution was close to 1:1. This reveals that there is no gender discrimination as far as employment is concerned in multinational manufacturing firms. The study also confirmed a higher proportion of employees having postgraduate and bachelor's degrees.

The research conclusions revealing supplier integration influenced operational performance positively. The study found out that strategic partnerships exist between the multinational manufacturing firms and suppliers, the organizations offer training services to their suppliers, the companies consider views of their suppliers, supplier association has helped in cultivating procurement management and that the organizations share information with suppliers. Additionally, the respondents also agreed that their organization holds regular meetings with suppliers to review the

business issues, the suppliers meet the organization's required specifications such as inputs, the organization's information system are linked with those of suppliers and that there is rapid ordering system with key supplier.

Results demonstrate that internal integration influenced operational performance positively. The study established that internal integration has been adapted to a great extent. The respondents agreed that amongst the functional units, or business units or department there existed internal linkages, there is strong integrative inventory management, also enterprise application integration existed amongst the internal functions and that the organizations encourages the using cross functional teams in order to improve the process. Further it was evidenced that the department plans and objectives are set jointly, the activities in different department are centrally coordinated, there is information exchange across different departments, real-time searching of stock level has been instigated and in production process there is data integration. The study findings exemplify that customer integration impacted operational performance in a positive way. The research additionally found that customer integration had been implemented to a great degree. The descriptive statistics concerning customer integration reveal that the organizations make use of different internet platforms to engage with clients, the organizations invite customers to participate in the design of new products and services, the organizations share available inventory with the major customers and that customer feedback is useful in improving the relationship of customers, products, services as well as processes. Further, the organizations have a computerized system for ordering customer, they apply effective communication with customer, customer needs and satisfactions are their competitive strategies, customer data is systematically collected into an integrated database and that the organizations apply systematic complaint handling processes.

5.3 Conclusions

The conclusions taken from the research results for every research objectives are presented in this section. SCI comprises of three key activities namely internal, customer and supplier integration. Multinational manufacturing firms have embraced supply chain integration to a large extent. In regards to supplier integration, the firms

have endless relations with their suppliers and this has permitted better procurement management. In terms of internal integration, the firms have established internal linkages to a great extent which ensures seamless flow of information, services and products. Customer integration has also been implemented to a large degree and this is demonstrated by emerging channels for customer feedback and inviting them to participate in the design of novel products.

The study concluded that supplier integration impacted operational performance positively. The regression and correlation outcomes back up the findings, as there was a significant positive relationship between supplier integration and operational success. The research too concluded that internal integration influenced operational performance positively. The regression as well as correlation results back up the findings, as there was a positive and substantial relationship between internal integration and operational performance. Additionally, the study concluded that customer integration affected operational performance in a positive way. The regression and correlation outcomes back up the results, as there was a significant positive association between customer integration and operational performance.

5.4 Recommendations for Policy and Practice

The research exposed that supplier integration impacted operational performance positively. The research therefore suggests that multinational manufacturing companies ought to be more vibrant in innovating new ways of integrating with suppliers as this would boost their operational performance and thereby sharpen their competitive edge. To attain this, the study also recommends the need for policymakers and to develop policies which ease the interactions of multinational manufacturing firms with suppliers.

The study discovered that internal integration impacted operational performance positively. The research therefore suggests that multinational manufacturing companies ought to continue conducting internal integration as this goes a long way in ensuring operational performance which in essence enhances business success. The study also recommends that multinational manufacturing firms ought to adopt new innovative ways of ensuring seamless internal integration.

The study discovered that customer integration impacted operational performance positively. The study therefore recommends that multinational manufacturing firms should invest more resources into customer integration which would help in improving operational performance and in essence success of multinational manufacturing firms. Policy makers should come up with policies to ensure their continued effort to integrate with customers is maintained.

5.5 Limitations of the Study

To begin with, this research depended on primary data that was acquired via a questionnaire; however, some target participants did not complete the surveys. Others filled in some selections but left out others, reducing the results' dependability. The researcher had to follow up on mail and phone calls on a regular basis. Furthermore, some respondents were concerned about their privacy while answering the questions. Nevertheless, the researchers ensured them that the material would only be used for academic purposes.

The focus was on several factors that are thought to influence multinational manufacturing organizations' operational performance. The study focused on three explanatory variables in particular. Nevertheless, there are additional factors that are likely to impact these companies' operational performance. Others are external, such as exchange rates, inflation, and political interference, while some are internal, like technology adoption, process improvements, as well as outsourcing.

The researchers employed a multivariate linear regression model to analyze the data. Because of the limitations of utilizing the model, such as erroneous and misleading results that cause the value of the variable to change, it was not possible to generalize the study's results with accuracy. Furthermore, if more data was included in the regression, the outcome could be different. As a result, the model constituted still another drawback.

5.6 Suggestions for Further Research

Additional study should be conducted to fill in the gaps identified in this research. The influence of supply chain integration on operational performance among multinational

manufacturing companies in Kenya was the subject of the research. As a result, for comparative purposes, similar research might be conducted in other manufacturing firms in Kenya or in other sectors.

The research did not deplete all the predictor variables that influence operational performance among multinational manufacturing firms in Kenya and hence recommends that additional research be carried out to include additional variables internal controls, outsourcing, technology adoption among other variables. Identifying how each variable influences operational performance will allow policy makers to identify the best tool for enhancing operational excellence.

Eventually, this research relied on a multiple linear regression model, which has its own set of drawbacks, such as errors and misleading results when a variable is changed. Future academics should investigate the many associations between supply chain integration and operational performance using models like the Vector Error Correction Model (VECM).

REFERENCES

- Aduku, J. M. & Ayertey S. N. (2015), supply chain management integration and its effects on performance in hospitality industry in Ghana, *Universal Journal of Industrial and Business Management* 2(1): 8-1
- Antai, I. (2011). A Theory of the Competing Supply Chain: *Alternatives for Development*, 4(1), 74–85
- Arya, B. & Lin, Z. (2007). Understanding collaboration outcomes from an extended resource-based view perspective: the roles of organizational characteristics, partner attributes, and network structures. *Journal of Management*, 33(5), 697-732
- Atnafu, D. (2015). The effect of supply chain integration on operational performance: The case of chemical industry in Ethiopia. *European Journal of Business and Management*, 7, 27, 2015
- Ayoub, H.F., Abdallah, A.B., Suifan, T.S. (2017). *The effect of supply chain integration on technical innovation in Jordan: The mediating role of knowledge management*. *Benchmarking* 2017, 24, 594–616.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management* 17 (1), 99–120.
- Ballou, R. H. (2004). *Business Logistics/Supply Chain Management*, 5th ed., Prentice-Hall, Upper Saddle River, NJ.
- Braunscheidel, M. J., & Suresh, N. C. (2009). The organizational antecedents of a firm's supply chain agility for risk mitigation and response. *Journal of Operations Management*, 27(2), 119-140
- Bowersox, D. J. & Closs, D. J. (2006). *Logistical Management: The Integrated Supply Chain Process*. New York: McGraw-Hill.
- Chege, J, Ngui, D and Kimuyu, P. (2016). Scoping paper on Kenyan manufacturing, *Working Paper No. 25. Learning to Compete (L2C)*.
- Cheruiyot F. C. (2018). *The effect of supply chain integration on operational performance of manufacturing organizations in Kenya*. Strathmore University. Retrieved from <http://su-plus.strathmore.edu/handle/11071/6172>

- Cook, L.S., Heiser, D.R. & Sengupta, K. (2011). The moderating effect of supply chain role on the relationship between supply chain practices and performance: an empirical analysis, *International Journal of Physical Distribution & Logistics Management* 41(2):104-134
- Chopra, S. & Meindl, P. (2007). *Supply chain management: strategy, planning, and operation. 3rd edition. Upper Saddle River: Pearson Prentice Hall.*
- Cooper, M.C., Lambert, D.M., & Pagh, J. (2012). Supply Chain Management: More Than a New Name for Logistics. *The International Journal of Logistics Management* 8, 1, pp 1–14
- Corbett, L. M. (1992). Delivery windows - a new view on improving manufacturing flexibility and on-time delivery performance, *Production and Inventory Management Journal*, vol. 33, no. 3, pp. 74-79.
- Davis, G. F & Cobb, J. A. (2010). *Resource dependence theory: Past and future. Research in the Sociology of Organizations*, 28, 21-42.
- Danese P. (2013). *Supplier integration and company performance: A configurational view, Omega, Elsevier*, 41(6), 1029-1041.
- Dröge, C., Jayaram, J., & Vickery, S. (2004). The effects of internal versus external integration practices on time-based performance and overall firm performance. *Journal of Operations Management* 22 (6):557-73
- Dyer, J.H., Singh, H. (1998). The relational view: cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review* Vo 23 No. 4, pp 660–679.
- Economic Survey of 2019 by Kenya National Bureau of Statistics (KNBS), Retrieved from www.knbs.or.ke
- Economic Survey of 2020 by Kenya National Bureau of Statistics (KNBS), Retrieved from www.knbs.or.ke
- Fawcett, S. E., Stanley, L. L., & Smith, S. R. (1997). Developing a logistics capability to improve the performance of international operations. *Journal of business logistics*, 18(2).

- Fawcett, S. E., Jones, S. L., & Fawcett, A. M. (2012). Supply chain trust: The catalyst for collaborative innovation. *Business Horizons*, 55(2), 163-178.
- Fisher, M.L., Hammond, J.H. and Obermeyer, W.R. (1994). Making supply meet demand in an uncertain world, *Harvard Business Review*, 72, (3), 83–93.
- Flint, D. J. (2004). Strategic marketing in global supply chains: Four challenges. *Industrial Marketing Management*, 33(1), 45–50
- Flynn, B. B., Huo, B., & Zhao, X., (2010). The impact of supply chain integration on performance: A contingency and configuration approach, *Journal of Operations Management*, 28, (1), 58-71
- Frohlich, M. T. & Westbrook, R. (2001). Arcs of integration: an international study of supply chain strategies, *Journal of Operations Management*, 19 (2), 185-200.
- Echtelt, F., Wynstra, F., Weele, A., & Duysters, G. (2008). Managing Supplier Involvement in New Product Development: A Multiple-Case Study. *The Journal of Product Innovation Management*, 25(2): 180–201.
- Hammer, M., (2001), The Superefficient Company, *Harvard Business Review*, Vol. 79, No. 9 p. 84
- Jones, C. (1998). Moving beyond ERP: *Making the missing link*. *Logistics Focus*; 6(7):2–7.
- Kahn, K.B. & Mentzer, J.T. (1996). Logistics and interdepartmental integration, *International Journal of Physical Distribution and Logistics Management*, 26, (8), 6–14.
- Kanter, R.M. (1994). Collaborative advantage: art of alliances. *Harvard Business Review* 73 (4), 96–108.
- Katua (2014), Supply integration on the supply chain performance with a in large manufacturing firms, Retrieved from <http://erepository.uonbi.ac.ke> Unpublished MBA project, University of Nairobi.
- Kenya Vision 2030, Retrieved from <http://vision2030.go.ke>
- Kim, D. Y. (2013). Relationship between supply chain integration and performance. *Operations Management Research*, 6, 74–90

- Koehn, W. & Ronoh, R. K (2016). Challenges faced in the implementation of Supply Chain Management in the Manufacturing Sector, *International Journal of Science and Research (IJSR)*
- Koufteros, X., Vonderembse, M. & Jayaram, J. (2005), Internal and external integration for product development: the contingency effects of uncertainty, equivocality, and platform strategy, *Decision Science*, 36, (1), 97–133.
- Kumar, V., Chibuzo E. N., Garza-Reyes J. A., Kumari A, Rocha-Lona L., & Lopez-Torres G. C., (2017), *The impact of supply chain integration on performance: evidence from the UK food sector*, 27th International Conference on Flexible Automation and Intelligent Manufacturing, FAIM2017, 27-30 June 2017, Modena, Italy
- Lambert, D.M. (2004). The eight essential supply chain management processes. *Supply Chain Management Review*, 8 (6), 18 – 26
- Lavie, D. (2006). The competitive advance of interconnected firms: An extension of the resource-based view. *Academy of Management Review*, 31(3), 638-658.
- Lee, H. L. (2000), Creating value through supply chain integration. *Supply Chain Management Review*, 4 (4), 30-36.
- Libanio, G. & Moro S. (2007). Manufacturing Industry and Economic Growth in Latin America: *A Kaldorian Approach*, 1-7
- Liker, J.K., Kamath, R.R., Watsi, S.N. & Nagamachi, M. (1996). Supplier involvement in automotive component design: are there really large US-Japan differences? *Research Policy*, 25, 59–89
- Likert, R. (1931). A technique for the measurement of attitudes. *Archives of Psychology*, 22(140), 1-55
- Lotfi, Z., Mukhtar, M., Sahran, S. & Zadeh, A. T. (2011). Information sharing in supply chain management, *Procedia Technology*. 11, 298–304
- Manufacturing in Kenya Under the 'Big 4 Agenda' A Sector Deep-dive Report, Retrieved from kam.co.ke
- Mason-Jones, R. & Towill, D.R. (1997). Information enrichment: designing the supply chain for competitive advantage. *Supply Chain Management: An International Journal*, 2 (4), 137-48.

- Maurer, T. J. & Pierce H. R. (1998). A comparison of Likert scale and traditional measures of self-efficacy. *Journal of Applied Psychology*, 83(2), 324-329.
- Mbaisi, B. (2016), *Factors affecting supply chain integration in large manufacturing firms in Kenya*, Retrieved from <http://erepository.uonbi.ac.ke> Unpublished MBA project, University of Nairobi.
- Mitchell, W. & Singh, K. (1996). Survival of businesses using collaborative relationships to commercialize complex goods. *Strategic Management Journal*, 17 (3), 169–196.
- Morten, J. (2003). Managerial Challenges within Networks: Emphasizing the Paradox of Network Participation, *The Aarhus School of Business*, 9(3), 372-375
- Narasimhan, R., & Kim, S.W. (2002). Effect of supply chain integration on the relationship between diversification and performance: Evidence from Japanese and Korean firms. *Journal of Operations Management* 20 (3):303-23
- Osei, M.B, Kagniciogu, C.H. (2018). The impact of supply chain integration on firms' business and operational performance at the food retail sector/industry. *Journal of Management, Marketing and Logistics (JMML)*, 5(1), 18-30.
- Owino, D. (2015). *Supply chain integration and organizational performance of commercial banks in Kenya*. Retrieved from <http://erepository.uonbi.ac.ke> Unpublished MBA project, University of Nairobi.
- Pakurár, M., Haddad, H., Popp, J., Khan, T. & Oláh, J. (2019). Supply chain integration, organizational performance and balanced scorecard: An empirical study of the banking sector in Jordan. *Journal of International Studies*, 12(2), 129-146.
- Peteraf, M.A. (1993). The cornerstones of competitive advantage: a resource-based view, *Strategic Management Journal*, 14(3), pp179-191
- Petersen K.J., Handfield R.B., Ragatz G.L. (2005). *Supplier integration into new product development: coordinating product, process and supply chain design*, *Journal of Operations Management*, 23, 371-388.
- Pfeffer, J, & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. Ny: Harper and Row

- Ragatz, G.L., Handfield, R.B. & Peterson, K.J. (2002). Benefits associated with supplier integration into new product development under conditions of technology uncertainty, *Journal of Business Research*, 55, 389–400
- Ralston, P.M., Blackhurst, J., Cantor, D.E. & Crum, M.R. (2015), A structure-conduct-performance perspective of how strategic supply chain integration affects firm performance, *Journal of Supply Chain Management* 51(2):47-64.
- Robbins, P.S. & Coulter, M. (2002). *Management*, Prentice-Hall, Upper Saddle River, NJ
- Rolstadas A. (1998). Enterprise Performance Measurement, *International Journal of Operations and Production Management*, 18, 9-10
- Sabath, R. (1995). Volatile demand calls for quick response: the integrated supply chain, *Logistics Information Management*, 8, (2), 49–52.
- Sawhney, R. (2006). Interplay between uncertainty and flexibility across the value chain: towards a transformation model of manufacturing flexibility. *Journal Operations Production Management* 24, (5), 476–493
- Samaranayake, P. (2005). A conceptual framework for supply chain management: a structural integration. *Supply Chain Management: An International Journal*, 10(1), 47-59.
- Sambasivan, M., Siew-Phaik, L., Abidin Mohamed, Z., & Choy Leong, Y. (2011). Impact of interdependence between supply chain partners on strategic alliance outcomes: role of relational capital as a mediating construct. *Management Decision*, 49(4), 548-569.
- Simchi-Levi, D., Kaminsky, P. & Simchi-Levi, E. (2009). *Designing and managing the supply chain: concepts, strategies and case studies*. 3rd edition. New York: McGraw-Hill.
- Slack, N., Chambers, S. and Johnston, R. (2007). *Operations Management, 5th Edition*, Prentice Hall
- Sousa, R. (2003). Linking quality management to manufacturing strategy: an empirical Investigation of customer focus practices. *Journal of Operations Management*, 21(1): 1–18.

- Sroka, W. & Szántó, R. (2018). Corporate Social Responsibility and Business Ethics in Controversial Sectors: Analysis of Research Results. *Journal Enterprise. Management Innovation*
- Sroka, W. & VVeinhardt, J. (2018). *Nepotism and favouritism in the steel industry: A case study analysis*. *Forum Scientiae Oecon.* 2018, 6, 31–45.
- Stank, T. P., Keller, S. B., & Closs, D. J. (2001). Performance benefits of supply chain logistical integration. *Transportation Journal*, 32-46
- Stevens, G. (1990). Successful supply chain management. *Management Decision*, 28 (8), 25 – 30.
- Swink M., Narasimhan R., Wang C. (2007). Managing beyond the factory walls: effects of four types of strategic integration on manufacturing plant performance, *Journal of Operations Management*; 25: 148-16
- Vijayasathy L.R. (2010). Supply integration: An investigation of its multi-dimensionality and relational antecedents, *International Journal of Production Economics*, 124: 489-505
- Voss, C. A., Åhlström, P., & Blackmon, K. (1997). Benchmarking and operational performance: some empirical results. *International Journal of Operations & Production Management*, 17 (10), pp.1046 - 1058
- Walliman, N. (2010). *Research methods: The basics*, Routledge, London and New York.
- Wisner, J., Leong, G.K., & Tan, K.C. (2006). *Principles of Supply Chain Management. A Balanced Approach*. Beijing, Thomson.
- Wong, C. Y., Boon-itt, S., & Wong, C. W. Y. (2011). The contingency effects of environmental uncertainty on the relationship between supply chain integration and operational performance, *Journal of Operations Management*, 29, (6), 604–615.
- Yuen, K. F. & Thai, V. V. (2016). The relationship between supply chain integration and operational performances: a study of priorities and synergies, *Transportation Journal*, 55, (1), 31-50
- Yu, W. (2015). The effect of IT-enabled supply chain integration on performance. *Production Planning & Control* 26, (12), 945-57.

- Zhao, L., Huo, B., Sun, L., & Zhao, X. (2013). The impact of supply chain risk on supply chain integration and company performance: A global investigation. *Supply Chain Management: An International Journal* 18 (2):115-31
- Zhu, Q., & Sarkis, J. (2004). Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises. *Journal of operations management*, 22(3), 265-289.
- Zhu, Q., Sarkis, J., Lai, K.H., (2012). Examining the effects of green supply chain management practices and their mediations on performance improvements. *International Journal Prod. Res.* 50 (5), 1377–1394.

Appendix I: Research questionnaire

This questionnaire is designed to help the researcher to conduct a research in assessing the supply chain integration and operational performance among multinational manufacturing firms in Kenya. Your assistance is kindly being sought to participate in this exercise by completing this questionnaire as frankly as possible.

Please be assured that information provided in this questionnaire is purely for academic purpose and therefore would be treated with utmost **Confidentiality. Thank You**

(TICK WHERE APPROPRIATE)

INSTRUCTIONS FOR COMPLETION OF THE FORM

Please read each question and tick the statement or choose the number that clearly reflects your view, you can also express your views where necessary.

NB: Do not write your name on this questionnaire

Part I: Demographic Information

(Please tick one box for each of the questions)

1. Name of the company?
2. Kindly indicate your position in this organization?
3. Show the period that your Organization Established?
4. Sex/Gender **M** **F**
5. Qualification:
Certificate Diploma First degree Masters
PhD
6. Department: Supply Chain Quality Assurance Sales and
Marketing Other (Specify).....
7. How long have you been in the current position?
1-5 years 6-10 years
11-15 years Above 16years
8. Age:
18 – 30 years 31 – 40 years
41-50 years 51 and above

Part II: Extent of Supply Chain Integration among the multinational manufacturing firms in Kenya

1. The following shows extent of SCI approaches in organizations. Kindly tick the area which reflects your view from strongly agrees to strongly disagree.

Please indicate the extent of Supplier integration of your organization. (1=strongly disagree;2=disagree;3=neutral;4=agree;5=strongly agree)		1	2	3	4	5
a)	Strategic partnerships exist between them and suppliers.					
b)	The organization trains its suppliers.					
c)	The organization considers views of their suppliers.					
d)	Supplier relationship has helped in improving procurement management.					
e)	The organization shares information with its suppliers.					
f)	The organization holds regular meetings with suppliers to review the business issues.					
g)	The suppliers meet the organization's required specifications such as inputs.					
h)	The organization's information system are linked with those of our suppliers.					
i)	There is quick ordering system with major supplier.					

Any other? Please indicate

.....

Please indicate the extent of Internal integration of your organization. (1=strongly disagree;2=disagree;3=neutral;4=agree;5=strongly agree)		1	2	3	4	5

a)	There is presence of internal linkages among the departments, functions, or business units within the firm.					
b)	There is strong integrative inventory management.					
c)	There is Enterprise application integration among internal functions.					
d)	The organization encourages the use of cross functional teams in process improvement.					
e)	The department plans and objectives are set jointly.					
f)	The activities in different department are centrally coordinated.					
g)	There is information exchange across different departments.					
h)	Real-time searching of the level of inventory has been implemented					
i)	There is data integration in production process					

Any other? Please indicate

.....

Please indicate the extent of Customer integration of your organization. (1=strongly disagree;2=disagree;3=neutral ;4=agree;5=strongly agree)		1	2	3	4	5
a)	The organization has a computerized system for ordering customer.					
b)	The organization uses of effective communication with customer.					
c)	Customer needs and satisfactions are our competitive strategies.					
d)	The organization makes use of different internet					

	platforms to engage with customers.					
e)	The organization invites customers to participate in the design of new products and services.					
f)	The organization shares available inventory with the major customers.					
g)	Customer feedback is collected and utilized to enhance customer relationships, processes, products, and services.					
h)	Customer data is systematically collected into an integrated database.					
i)	When it comes to handling complaints, the organization follows a set of procedures.					

Any other? Please indicate

.....
.....

Part III: Effects of the Supply Chain Integration approaches on operational performance among the multinational manufacturing firms in Kenya

1. The statements below describe the consequence of supply chain integration approaches on operational performance. Please mark the section that best represents your point of view, ranging from strongly agrees to strongly disagrees.

Please indicate effect of supply chain integration approaches on operational performance. (1=strongly disagree;2=disagree;3=neutral ;4=agree;5=strongly agree)		1	2	3	4	5
1	Cost					
a)	The organization is works on economy of scale (large-scale production to reduce the cost per unit).					
b)	The organization provides cost effective service to					

	customer.					
c)	Internal integrations reduces administrative costs.					
d)	SCI reduces the average unit manufacturing cost.					
e)	SCI helps the organization reduce the inventory to minimum level to the extent that does not hinder the continuation of work					
2	Quality					
a)	SCI has lead the organization to choses their suppliers on the basis of high-quality.					
b)	SC integration has assisted in improving the quality of goods, works and services offered to the beneficiary.					
c)	The implementation of supply chain integration has greatly enhanced product quality.					
d)	Internal integration results in proper storage conditions that meet the requirements.					
e)	Internal integration leads to an increased quality information sharing in order to improve operational efficiency.					
f)	SCI has increased customer satisfaction levels.					
g)	Integration with suppliers have enhanced more conformity with technical set specifications					
h)	Customer Integration leads to improved product quality and variety.					
3	Flexibility					
a)	Internal Integration reduces equipment changeover time.					
b)	SCI enables the organization to be able to respond to changes in production volumes.					
c)	SCI enables the organization to give its customers credit facilities after ascertaining their financial status.					
d)	SCI helps the organization to appreciate openness to new ideas at work.					

e)	SCI helps the organization to quickly modify products to meet the customer's requirement.					
f)	SCI enables the organization chose suppliers who are flexible in responding to requests of the company when needed.					
g)	SCI enables organization to quickly introduce new product in the market.					
h)	SCI enables the organization to respond to changes in the industry business practices such as green supply chain.					
4	Speed					
a)	SCI helps organization to have an outstanding on-time delivery record to customers.					
b)	The company reserves the minimum limit of stock which could continue of work in the case of raw material delay.					
c)	Suppliers are committed to supply orders by the agreed timetables.					
d)	SCI helps the organization to increase with speed with which the decision-making process is undertaken.					
e)	The company is dedicated to providing quick service to its clients.					
f)	SCI helps organization to quickly respond to changes in market demand.					
5	Dependability					
a)	To ensure competition, the company brings new products from competitors.					
b)	The organization quickly modify products to meet major customer's requirement.					
c)	The organization provides a high level of customer service to its major customers.					
d)	There is high response to dynamic customer needs.					
e)	SCI helps organization through suppliers have enhanced more conformity with technical					

	set specifications.					
--	---------------------	--	--	--	--	--

Any other? Please indicate

.....

Thank you very much for the valuable information, is there anything else you would like to add or ask?

.....

Thank you for your Participation.

Appendix II: List of Multinational Manufacturing Companies in Kenya

1. Nestlé Foods
2. Procter and Gamble EA Ltd
3. Coca-Cola
4. Gillette
5. British American Tobacco
6. Unilever Kenya
7. General Motors East Africa
8. Bayer East Africa
9. Glaxo Smith Kline Kenya Ltd
10. Beta Healthcare International Limited
11. Chandaria Industries Limited
12. Orbit Chemicals Industries Limited
13. Bidco Oil Refineries
14. East African Portland Cement Company (EAPC)
15. Colgate Palmolive (EA) Ltd
16. East African Breweries Ltd
17. General Motors East Africa
18. Haco Industries
19. Kapa Oil Refineries
20. East African Packaging Industries
21. Tetra Pack
23. Kenya United Steel Ltd (KUSCO)
24. Bestfoods Kenya Ltd
25. Pwani Oil Refineries
26. Henkel Kenya Ltd

27. Bata Shoe Company (Kenya)
28. Henkel Kenya Limited
29. Gargil Kenya Limited
30. Topen Industries
31. Weltech Industries
32. Osho Chemical Industries
33. Palmac Oil Industries
34. Sona Holdings
35. Rolmil Kenya Limited
36. Associated Steel Company Limited.
37. Kenya United Steel Ltd (KUSCO)
38. Bamburi Cement
39. Associated Paper & Stationery Ltd
40. Total Kenya Limited-Lubes Blending plant
41. Atlas Copco Kenya Ltd
42. General Electric
43. Pan paper
44. Aluminum Africa Limited
45. Oil Libya Lube Blending
46. Doshi Group of Companies

Source: KAM Directory