

**SUPPLY CHAIN MANAGEMENT PRACTICES AND RESILIENCE OF
MANUFACTURING FIRMS IN NAIROBI COUNTY, KENYA AMID
COVID-19 PANDEMIC**

BY:

PAUL KIPKOECH KOSKEI

**A MANAGEMENT RESEARCH PROJECT SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF BUSINESS ADMINISTRATION, FACULTY OF
BUSINESS AND MANAGEMENT SCIENCES, UNIVERSITY OF
NAIROBI**

NOVEMBER 2023

DECLARATION

This management research project is my original work and has not been submitted to any other University or College for academic purposes.

REG NO	NAME	SIGN	DATE:
D61/5595/2017	PAUL KIPKOECH KOSKEI		24th November 2023

This Research paper has been submitted for examination with my approval as the University supervisor.

 Signature.....	26th November 2023 Date:
-----------------------------------------------------------------------------------------------------	-----------------------------------------------------

Dr. Kipkorir M. Chirchir
Lecturer
Department of Management Science and Project Planning
Faculty of Business and Management Sciences
University of Nairobi

ACKNOWLEDGEMENTS

My appreciation goes to my supervisor, Dr. Michael Chirchir, for his guidance and support throughout this project.

God bless you.

DEDICATION

I dedicate this project to God Almighty for the protection, guidance and wisdom He granted me throughout this project.

I also dedicate this work to my Family for the moral support and encouragement during this project. May the Lord Bless you.

I also appreciate the dedication of my supervisor Dr. Kipkorir M. Chirchir for all his support throughout this project. God bless you.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	iii
DEDICATION	iv
TABLE OF CONTENTS	v
LIST OF TABLES	vii
LIST OF FIGURES	viii
ABBREVIATIONS AND ACRONYMS	ix
ABSTRACT	x
CHAPTER ONE: INTRODUCTION	1
1.1 Background of the Research	1
1.1.1 Supply Chain Management Practices.....	2
1.1.2 Supply Chain Resilience	3
1.1.3 Covid 19 Pandemic	4
1.1.4 Manufacturing Companies in Nairobi, Kenya	5
1.2 Research Problem.....	5
1.3 Objectives of the Research.....	7
1.4 Value of the Study.....	7
CHAPTER TWO: LITERATURE REVIEW	9
2.1 Introduction	9
2.2 Theoretical Literature Review.....	9
2.2.1 Systems Theory.....	9
2.2.2 Technology Acceptance Model Theory	9
2.2.3 Disruptive Innovation Theory	10
2.3 Supply Chain Management Practices.....	11
2.4 Empirical Literature Review	12
2.5 Summary of Literature and Research Gaps.....	16
2.6 Conceptual Framework	19
CHAPTER THREE: RESEARCH METHODOLOGY	20
3.1 Introduction	20
3.2 Research Design.....	20
3.3 Population of the Study.....	20
3.4 Data Collection.....	21
3.5 Data Analysis	22

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS.....	23
4.1 Introduction.....	23
4.2 Response Rate.....	23
4.3 Background Information.....	23
4.3.1 Gender.....	23
4.3.2 Age.....	23
4.3.3 Level of Education.....	24
4.3.4 Years Worked in the Company.....	25
4.3.5 Years the Firm has been in Existence.....	25
4.4 Extent of Implementation of Supply Chain Management Practices.....	26
4.4.1 Supply Chain Management Practices.....	26
4.4.2 Supply Chain Management Practices and Demand Visibility.....	26
4.4.3 Supply Chain Management Practices and Supply Chain Collaboration.....	29
4.4.4 Supply Chain Management Practices and Agility.....	31
4.4.5 Supply Chain Management Practices and Flexibility.....	33
4.4.6 Supply Chain Management Practices and Resilience.....	35
4.5 Discussions of Research Findings.....	37
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS.....	39
5.1 Introduction.....	39
5.2 Summary of the Findings.....	39
5.3 Conclusion.....	40
5.4 Recommendations From the Study.....	41
5.5 Limitations of the Study.....	41
5.6 Suggestions for Further Research.....	42
REFERENCES.....	43
APPENDIX 1 QUESTIONNAIRE ...	47
APPENDIX II LIST OF MANUFACTURING COMPANIES IN NAIROBI	
COUNTY51

LIST OF TABLES

Table 2.1 Summary of Literature and Research gaps.....	14
Table 3.1 Sample Population.....	19
Table 3.2 Summary of Data Collection and Analysis Methods.....	20
Table 4.1 Gender of the Respondents.....	21
Table 4.2 Respondents Age.....	22
Table 4.3 Level of Education.....	22
Table 4.4 Years worked in the Company.....	23
Table 4.5 Years the Firm has been in Existence.....	24
Table 4.6 Descriptive Statistics.....	24
Table 4.7 Regression Coefficients of Demand Visibility.....	25
Table 4.8 Model Summary of Demand Visibility.....	26
Table 4.9 ANOVA for Demand Visibility.....	26
Table 4.10 Regression Coefficients of Supply Chain Collaboration.....	27
Table 4.11 Model Summary of Supply Chain Collaboration.....	28
Table 4.12 ANOVA for Supply Chain Collaboration.....	28
Table 4.13 Regression Coefficient for Agility.....	29
Table 4.14 Model Summary of Agility.....	30
Table 4.15 ANOVA for Agility.....	30
Table 4.16 Regression Coefficients for Flexibility.....	31
Table 4.17 Model Summary of Flexibility.....	32
Table 4.18 ANOVA for Flexibility.....	32
Table 4.19 Regression Coefficients for Supply Chain Resilience.....	33
Table 4.20 Model Summary of Supply Chain Resilience.....	33
Table 4.15 ANOVA for Composite Measure.....	34

LIST OF FIGURES

Figure 2.1: Conceptual Model	17
------------------------------------	----

ABBREVIATIONS AND ACRONYMS

COVID-19	Corona Virus Disease 2019
CRM	Customer Relationship Management
DIT	Disruptive Innovation Theory
ISM	Institute for Supply Management
KAM	Kenya Association of Manufacturers
KNBS	Kenya National Bureau of Statistics
PWC	Price Water Coopers
SCM	Supply Chain Management
ST	Systems Theory
TAM	Technology Acceptance Model
TPB	Theory of Planned Behavior
TQM	Total Quality Management
WHO	World Health Organization

ABSTRACT

The study sought to determine the influence of supply chain management practices on the resilience of manufacturing companies in Nairobi County, Kenya amid covid-19 pandemic. The objectives were to find out the supply chain management practices executed by manufacturing companies and to find out effect of supply chain management practices on the resilience of manufacturing companies in Nairobi County, Kenya. Descriptive design was the research design adopted. The population of the study was made up of the Manufacturing firms in Nairobi County, Kenya which were 41 in number. Primary data was used in the study and was obtained via questionnaires administered by hand and on through emails. Descriptive statistics was used to analyze objective one which was to find out the supply chain management practices executed by manufacturing companies in Nairobi County, Kenya. Regression analysis was used to analyze objective two which sought to analyze the relationship between Supply Chain Management Practices and Resilience of Manufacturing firms in Nairobi County. On objective one which was to find out the supply chain management practices executed by manufacturing companies in Nairobi County, Kenya, it was concluded that Supplier Distribution, Information Flow and Customer Focused Distribution were executed to a moderate extent. Objective two of the study ascertained that Supplier Distribution, Information Flow and Customer Focused Distribution all had a positive relationship with Resilience of manufacturing companies. Supplier Chan Management Practices were established to influence Demand Visibility. Supply Chain Collaboration, Agility and Flexibility in Resilience of manufacturing companies in Nairobi County, Kenya. It is recommended that Supplier Distribution, Information and Customer Focused Distribution be executed as they were found to have been executed to a moderate extent by Manufacturing Companies in Nairobi County, Kenya. The research was limited since it solely relied on primary data of the Manufacturing Firms in Nairobi County, Kenya. Future studies should focus on Supply Chain Management Practices and resilience of manufacturing companies and all partners in the supply chain in all Counties in Kenya.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Research

Disruptions in the supply chain have always existed, but they have now grown into more complicated and frequent shocks with increasing intensity. According to the Hubs (2020) supply chain resilience report, the COVID pandemic was by far the most serious and dangerous threat to the world's global chains, outweighing any previous risks faced by industries. This pandemic revealed how many businesses suffered as a result of poor operations management and catastrophic losses in their supply chain networks. However, the resilience of those who were able to overcome the hurdles posed by the epidemic demonstrated how resilience may be cultivated. For example, during the global pandemic, Toyota was one of the sectors hardest hit, but Toyota, always one step ahead, moved a portion of its manufacturing from automobile manufacture to ventilation production to assist the suffering medical industry during the pandemic (Toyota News, 2020). It would be interesting to study how disruptions in the supply chain influences resilience of manufacturing firms.

Various theories have been put forward that explain how firms can develop resilient measures that can overcome unforeseen disruptions. For this study, technology acceptance model theory, systems theory and disruptive innovation theory will be of focus. The Technology Acceptance Model (TAM) is regarded as an effective strategy for describing and forecasting usage intentions and acceptance actions (Yi Hwang, 2003). TAM's capacity to explain attitude toward using an information system, according to Mathieson, Peacock, and Chin (2001), is superior to other multi-attribute models. Systems theory is centered on the systems that handle the institution's supplies. The theory can provide a paradigm for arranging diverse supply chain (SC) operations as well as a technique for a systematic approach to addressing supply chain challenges (Halldorsson, 2007). Disruptive innovations are those that create a novel market and worth network, gradually displacing well-established leading companies, goods, and affiliations. As per Christensen and Zeleny (2002), technical advances that harm established businesses are typically not substantially original or difficult from a technology standpoint.

The manufacturing sector in Kenya plays a major role in growing the economy. The sector in Kenya grew at 2.5% in 2019 and 2.8% in 2020, contributing significantly to gross domestic product (KNBS, 2021). Some of the Manufacturing firms in Kenya include Unilever, Diageo,

Nestle, Crown Paints Kenya, The CocaCola Company and Tetra Pak among others. By adopting measures that improves its reaction to external pressures that may disrupt supply chain systems, firms will be able to be competitive in this era and increase focus on reduction of cost of operation and delivering value to the customer.

1.1.1 Supply Chain Management Practices

Supply chain management is a comprehensive method that begins with the planning and control of materials, logistics, services, and information flows from suppliers to producers or service providers to the end client; it marks a significant shift in company management approaches. It is one of the most efficient methods for businesses to improve their performance (Chowa, 2015). Supply chain management is a collection of ideas and techniques for integrating suppliers, producers, resellers, and consumers in order to enhance the long-term performance of individual firms and the distribution network as a whole in a cohesive and high-performing business strategy (Min & Mentzer, 2013). Supply chain management practices in this research will focus on supplier distribution, Information flow and customer focused distribution.

Supplier distribution is the process of getting the correct items to consumers at the right time, in the right place, and in the right condition for them to purchase (Ellram & Cooper, 2014). Supplier distribution mechanisms enhance a company's exposure in the product market and can provide superiority in terms of speediness and efficacy. Further, it enables fast delivery, provide warehousing services, informs buying decisions and help create demand products (Zacharia, Sanders & Fugate, 2014).

The capability of a company to share knowledge with supply chain associates in an effective and competence way is referred to as information flow. One of the most substantial proficiencies of supply chain processes for emerging an integrated and coordinated supply chain is effective flow of information (Lee, 2015). According to Zailani and Rajagopal (2009), the technical revolution of the internet and e-commerce offers a new chance to build a "smart" integrated supply chain management. Sridharan (2013) described information sharing as access to private data between business partners, allowing them to track the progress of items and orders as they move through various supply chain operations.

Customer focused distribution allow companies to optimize the experiences that customers have with their brand. These strategies can help businesses improve customer loyalty, achieve sustained growth and increase retention (<https://www.indeed.com/career-advice/career->

[development/customer-focus-examples](#)). This strategy adds to the competitiveness of businesses and affects other elements of the marketing mix, for example, price, product and promotion (De Jager, 2014), while at the same time influencing the profitability and resilience of firms.

1.1.2 Supply Chain Resilience

Resilience of Supply chain management is well-defined as an enterprise's or group of businesses' ability to survive, adapt, and flourish in the face of adversity (Fiksel, 2015). Within companies and across supply chains, resilience recognizes both the ability of absorbing shocks in the form of extreme events and the adaptive capability to respond to new circumstances (Brusset & Teller, 2017). As a result, it is acknowledged as a responsive capability for a firm's success as well as a critical dimension of a firm's existence (Hohenstein, 2015).

A supply chain that is resilient is described by its ability to resist and recover. This includes the ability to withstand or avoid the repercussions of a supply chain disruption, besides recovering rapidly from one (Pettit, 2013). Multiple sections of the supply chain can be jeopardized by operational risk and interruption. Worldwide disasters, such as COVID-19, can have far-reaching global consequences for supply chain logistics, suppliers, and workforces. Other disruptions of supply chain can include unpredicted competitors, unexpected market trends, or even abrupt changes in client purchasing behaviors (Paul and Chowdhury, 2020). The most robust and supple supply chains are created with processes and cutting-edge technologies related to the supply chain that enable them to foresee, predict and act quickly to any dangers or opportunities the future may bring (Hohenstein, 2015).

Resilience is a function of being able to anticipate a disruption, resist the negative consequences of disruptions, quick response and decisively to changing conditions as needed. Measuring resilience of supply chains stakes into account agility, flexibility, level of collaboration, demand visibility, while utilizing robust network designs and highly visible IT frameworks (Thomé, 2016). According to supply chain resilience report of 2020 (Hubs, 2020), the COVID pandemic was by far the most severe and dangerous threat to the world's global chains, more than any previous threats that industries have previously witnessed be it cybercrime, natural disasters or any other unforeseeable chaos. Supply chain resilience will be measured through demand visibility, supply chain collaboration, agility and flexibility.

The measures will be able to determine the extent to which the adopted supply chain practices are enhances the resilience of manufacturing firms.

1.1.3 Covid 19 Pandemic

Coronavirus (COVID-19) is a contagious illness. It spread globally since its first emergence in China in December 2019, leading to pandemic that is still underway (Statista, 2020). The disease has wreaked extensive social and economic havoc, ensuing in social seclusion, visa restrictions, and one of the worst global recessions since the Great Depression (Wheelock, 2020). One can contract COVID-19 by taking in the virus or by contacting a surface that is contaminated then touching the sensitive body parts such as mouth, eyes, or nose. Because of its extraordinary speed of transmission, the new virus made news all around the world in late 2019. Its origins has been traced to a food market in Wuhan, China, in the month of December of 2019 spreading globally causing over 4.5 million deaths (WHO, 2019).

COVID-19 has complicated matters by revealing supply chains to a slew of threats. Firms must adapt to and manage a wide range of risks, from daily routines to potentially catastrophic interruptions, in order to build resilience. Identifying risks related to operations can aid to increasing real-time visibility and point to mitigation strategies (Fan & Stevenson, 2018). It has caused global disruption in all economic segments and businesses. The interruptions are largely the result of lockdown actions planned and executed by countries all over the world as part of a health strategy to mitigate the impact of the pandemic's spreading on the global population. Production halts, limit on people and commodities movement, border closures, logistical constraints and a slowdown in commerce and economic activity have all resulted from the COVID-19 lockdown. With the execution of lock downs, transport sector being critical to international supply-chain activity, remained partially blocked (Gunessee & Subramanian, 2020). Statistics suggest that 90 countries have implemented lockdowns since March 2020, with approximately 3.9 billion people who were under lockdown in April 2020. As a result, smooth operations of worldwide supply chains were hindered, having a severe impact on worldwide business and industrial operations (PWC, 2020).

To mitigate the impact of COVID-19 on Supply chain management practices, participants in the logistics, transport, and supply chain industries must apply innovative inventory management and distribution measures, as well as form strategic partnerships with participants and intermediaries across the value chain. Firms can mitigate the impact of COVID-19 by implementing policies about reduced inventory across their supply chain. Ivanov (2020) and Dolgui (2020) argued that activating secondary supplier relationships might help firms meet inventory shortages. This ensures that constraints and uncertainty at the vendor's end coupled with volatility in price and quantity of essential raw material leading to the barrier of inconsistent supply are addressed by manufacturing firms (Razdan, H., & Kumar, A. (2020)

1.1.4 Manufacturing Companies in Nairobi, Kenya

Manufacturing is essential not only for producing and transferring goods to markets, but also for economic purposes. Manufacturing institutions, such as The Institute for Supply Management (ISM), do research on manufacturing employment, inventories and orders to advise financial analysts and researchers. The sector remains an important component of industry, not just for supplying commodities to the marketplace, but also for driving the economy (KAM, 2020). Manufacturing sector's real GDP expanded by 3.6 per cent in the second quarter of 2022 compared to 11.3 per cent growth recorded in the same period of 2021. This contributes considerably to the country's GDP (KNBS, 2022).

Covid-19 had adverse effects on manufacturing firms. According to KAM report on the impact of Covid-19 launched on 20th May 2020, some of the effects of Covid-19 pandemic experienced by manufacturers include reduced demand, depressed production capacity, cash flow constraints, logistics challenges and in some cases, downsized workforce(KAM, 2020 The Coca-Cola Company and Broadways Ltd among others. Some of the Manufacturing firms in Nairobi County, Kenya include Bamburi Cement, Syngenta, Kens Metal and Crown Paints

1.2 Research Problem

Supply chain disruptions and their negative implications have increased in recent years, and the topic is becoming more mainstream. Previously, cost minimization or service optimization were the key goals of supply chain design; however, the essential factor must be on resilience (Blackhurst, 2011). There are still fundamental difficulties that researchers must

address before providing managers with a prescriptive model for creating resilient supply chains. While previous research is valuable, no unified set of resilient supply chain techniques has evolved.

Manufacturing is an important industry in Kenya's economic development, both in terms of national output and exports, as well as job creation. Kenya has a significant manufacturing sector that serves together the domestic market and exports to the region of East African. It is controlled by subsidiaries of multinational firms and significantly contributes to GDP growth (PWC, 2016). The manufacturing sector suffers the most in case of any disruptions that occur. Organizations face a plethora of hazards, including catastrophic climate declines, natural disasters, accidents in industry, violating the data security, fatal product recalls, breaching data, and terrorism threats (Williams and Duchek, 2020). Hence justifying why effective and resilient supply chains are of necessity.

Rameshwar and Chakrabarty (2013) conducted a study to understand how innovative supply chain practices combined with TQM to help reduce costs, improve customer satisfaction and increase profitability. However, the study was conducted on manufacturing companies using an experimental approach and did not address the issues of supply chain management practices and resilience. Kolwezi and Nyeko (2010) investigated the procurement process and performance and concluded that procurement efficiency and purchasing function effectiveness are metrics of procurement performance. Thai (2005) investigated internal factors influencing processes and discovered that accountability, ICT adaptation and ethics influence procurement procedures in Kenyan public procurement. The study however, did not evaluate supply chain management methods or the resilience of manufacturing organizations in times of change.

Many researches have also been carried out which directly links supply chain management practices and resilience and the nature of association is mixed comprising of negative and positive, significant as well as non-significant associations. Uzel (2018), Daniel, Roberto and Valdir (2018), observed a positive relationship. Other studies found non-significant connection (Timna, 2015), while Fugate & Davis-Sramek (2008), found mixed results. Kosgey (2021) in the research on the consequence of resilience of supply chain on organizational performance among selected manufacturing businesses in Nairobi, he noted that information management positively affects organizational performance though the study

did not clearly elaborate the aspects of supply chain management practices on performance. A study on resilience of manufacturing companies in Kenya by Wamalwa and Ochola (2022) noted that resilient companies identify early catastrophe and speedily responding and thus evade its escalation. However, the study did not evaluate the contribution of supply chain management practices as an input of resilience. These inconsistent findings need further research to resolve them.

From the studies above, it is evident that there still exist knowledge gaps that need to be addressed. This research sought to fill identified knowledge gaps by answering the following questions: What are the supply chain management practices implemented by manufacturing firms in Kenya? What is the influence of implementation of supply chain management practices on resilience of manufacturing firms in Nairobi, Kenya amid covid-19 pandemic?

1.3 Objectives of the Research

The key research's objectives were;

- i) To find out the supply chain management practices executed by manufacturing companies in Nairobi County, Kenya.
- ii) To find out the influence of supply chain management practices on the resilience of manufacturing companies in Nairobi County, Kenya in the face of the covid-19 pandemic.

1.4 Value of the Study

The research aims at providing information about best practices of supply chain management. This can inform manufacturing firms, policy makers and academicians on threats posed by unforeseen disruptions and how to counter them.

The study on supply chain resilience can help manufacturing organizations decrease and overcome risk exposure. This is realized by designing solutions that allow the supply chain to revert to its former functional state after unforeseen disruptions. Resilience is a fundamental driver for competitiveness, allowing organizations to face future challenges and unexpected disruptions.

This study will inform policy makers on issues to consider when mitigating the impacts created by supply chain disruptors on the manufacturing sector. This can be informed of provision of firm incentives that target consumer preferences and satisfaction. The ability of managers to map organizational reactions to these unforeseen occurrences is critical to an organization's survival in today's environment.

Researchers will apply the findings of this research to conduct further research on areas highlighted. Other than Covid-19 threats, researchers can also use the guidelines provided in this study to evaluate the treats caused by technological changes to manufacturing Firms.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section discusses the literature pertinent to the research. It begins with the theoretical assessment followed by a presentation of the supply chain management practices and next empirical literature review is outlined. Literature review is summarized in a table and the chapter ends with presentation of the research's conceptual model.

2.2 Theoretical Literature Review

This section discusses the theories applicable to the research. Technology acceptance model (TAM) theory, Systems Theory and Disruptive innovation theory will be used to argue out the case for implementation of supply chain management practices. The main theory is systems theory acceptance model and they are discussed below.

2.2.1 Systems Theory

Systems theory (ST) founded by Ludwig von Bertalanffy proposes that institution's supplies are handled a cohesive system in through interdependent components. The theory can provide a structure for arranging various supply chain operations as well as a technique for a systematic method for solving supply chain problems (Halldorsson, 2007). Systems can be characterized in several ways, including open or closed. A closed system does not communicate with its environment, whereas an open system does. The majority of systems are accessible. A closed system exists solely in contrived situations where outside intervention is restricted, such as settings for scientific investigations.

According to Jarad, Adams, Abutabenjeh & Keating (2017), managing the supply chain requires a holistic approach of suppliers, customers and the entire firm to create synergy and maximize the outputs in developing a resilient supply chain. Furthermore, organizations must recognize that, while information systems and supply chains are artificial creations and thus not living systems, this does not imply that they are static. They are actually quite dynamic, evolving and changing throughout time as they interact with changing stimuli in the internal and external environment.

2.2.2 Technology Acceptance Model Theory

Technology acceptance model theory is regarded as an effective model for describing and forecasting practice aims and behavior (Yi Hwang, 2003). Bouwman, Hooff, Wijngaert & Dijk (2014) provide a theoretical framework for examining the readiness of manufacturing firms and other entities in adopting best practice in supply chain management practices by drawing two schools of thought; Technology Acceptance Model by Davis (1989) and the Theory of Planned Behavior by Ajzen (1991). TAM theory will be used in this study to predict and understand the adoption of best practices that can assist in management of disruptions in supply chain (Lee, 2009).

TAM's capacity to explain attitude toward using an information system, according to Mathieson, Peacock and Chin (2001), is superior to other multi-attribute models. In turn, two important factors influencing technological behavior influence attitude in TAM: perceived ease of use and perceived utility (Parasuraman & Baraudi, 2006). According to Davis (2005), perceived usefulness is the extent to which a person believes that using the system would improve their performance, whereas ease of use is the extent to which a person believes that using the system will need no mental effort. TAM remains a useful theory in investigating the factors that influence older people's propensity to adopt new technologies (Braun, 2013).

2.2.3 Disruptive Innovation Theory

Disruptive Innovation Theory (DIT), advanced by Christensen and Bower (1996), Christensen and Raynor (2003), and Christensen (2006), was built up based on a series of previous technological innovation studies. Disruptive innovation is a process. Disruptive technologies, according to Christensen (2006), are technologies that deliver different values than mainstream technologies and are initially inferior to mainstream technologies in the performance dimensions that are most relevant to mainstream customers. The critical features of altering performance over time, plots the trajectories of product performance offered by firms and desired by customers for various technologies and market categories and demonstrates how technology disruptions occur when these trajectories intersect. Disruptive Innovation Theory evaluates factors such as globalization, technical advancements, cultural changes which are a threat to firms' operations. Despite its enormous significance, this theory is not universally embraced among business thinkers (Steenhuis & Pretorius, 2017). Its definition is relatively ambiguous because no single innovation characteristic or collection of characteristics is given. As a result, it is impossible to determine a single definition of this theory

2.3 Supply Chain Management Practices

Supply chain management practices are a form of actions conducted by organizations to augment successful supply chain management (Koh, 2007). Tutuncu and Kucukusta (2008) go on to say that supply chain management causes structural variations in organizations by integrating internal processes and linking them with the external operations of suppliers, consumers and other supply chain participants. The practices in supply chain management include collaboration, integration, and diversification, bulk buying, demand planning, supplier distribution, information flow and customer distribution. This study focused on three practices; supplier distribution, information flow and customer distribution which are the key practices that are affected by any form of disruption in the supply chain of a manufacturing company.

Supplier distribution is the process of selling and distributing goods and services from a manufacturer to a client (Charan, 2012). This is sometimes referred to as product distribution. As organizations become more global, optimizing distribution becomes increasingly important in order to keep buyers and other participants of the distribution network contented. In proposing the development of a proper supplier distribution framework, Govindan (2010) pointed out that activities of one company in the supply chain can impact the general supply chain effectiveness, receptiveness and productivity. Raw material vendor management, packing, warehousing, stocking, distribution network, logistics, and, in certain situations, block chain technology are among the activities and procedures involved. Distribution risks are inherent in the distribution networks by suppliers. Such risks, according to Johnson (2001), can be reduced by licensing distribution network designs and lowering capacity concerns through outsourcing and agile delivery systems.

Access to private data between business partners is characterized as information flow. This allows the partners to track the movement of goods through various supply chain procedures (Simatupang & Sridharan, 2002). Data gathering, processing, storage, display, retrieval, and broadcasting of demand are regarded as components of information flow. This flow is multimodal, meaning it travels both ways in the distribution chain. Information flow across business partners allows businesses to make better decisions and take action based on increased visibility (Tathee, 2007). It is an essential component of supply chain management collaboration. Due to rapid advancement of technology, businesses and their supply chain associates ought to have suitable and competitively interfirm data systems. This will enable

business to swiftly and efficiently respond to shifting customer needs and expectations (Bowersox, 2003).

Customers are the most important component of every supply chain. A firm with a well-established supply system will lose money if it does not have clients. According to Engel Seth (2012), customer-driven distribution is a system developed with the needs of the consumer in mind rather than the convenience of the company. Good client relationships result from the right product, in the right amount and quality, at the right place, time, and price (Bullington & Bullington, 2005). Cook, Heiser, and Sengupta (2011) studied whether the link between specific supply chain management practices and company performance is influenced by the company's place in the supply chain. The study found that the influence is on certain supply chain management practices such as customer focused distribution. Dough & Anneli (2016) in studying various forms of distribution channels confirmed that customer focused approach distribution creates more satisfaction on the part of the customers.

2.4 Empirical Literature Review

The section discusses the empirical literature that are related to the study. Sundram (2011) conducted an electronic industry survey of 125 Malaysian electronics companies. The study has a key significance in that industrial businesses should establish supply chain management capabilities to improve supply chain performance, beginning with increasing their level of data sharing and information quality. While data sharing is crucial, the impact on supply chain performance relies on what data is shared, when and how it is shared, and with whom. The study did not outline the ways of countering information breakdown among the supply chain players among the manufacturing firms which may result in a major disruption.

Collin and Lorenzin (2013) in a study on the mobile infrastructure industry, case study of Nokia Networks, identified that demand planning and project planning are major factors in increasing the agility of supply chains. This enables the firm respond adequately and meet customers' demands. Demand planning entailed anticipating and projecting the demand for items so to guarantee satisfaction when supplied. Abbey Jenkins (2020) further illustrated that being cross-functional, demand planning helps businesses meet customer demand for products while minimizing excess inventory and avoiding supply chain disruptions. However, these two studies did not elaborate how the customer expectations can be

incorporated such that end product informs planning process hence enabling manufacturing firms thrive even in unexpected challenges in its supply chain.

Research on impact of distribution practices by Ristovska, Kozuharov and Petkovski (2015) done through surveys and questionnaires, found that storage, warehousing and information management are key targets for managers in reducing costs of operations. The report indicates the attributes of a successful distribution management as dependability, anticipation, responsiveness, safety, and high efficiency. Further it illustrates that an efficient distribution and warehousing organization seeks to maintain optimal inventory with their suppliers at a fair level without unnecessary safety stock. Distribution management can efficiently reduce these ostensible competing problems with adequate strategy and implementation. The study ignored the customer's perspective in building resilience of manufacturing firms.

A study on physical distribution strategies and firm performance by Mbondo, Okibo and Mogwambo (2015) that focused on print media industry in Kenya found that physical distribution strategies have significant effect on firm performance. The study was done through questionnaires and survey. Physical distribution was identified as an important marketing function. Kinley & Fuller (2021) emphasized on automation of distribution processes in building resilience of manufacturing firms. They asserted that physical distribution should be treated in a functional perspective of anticipating, withstanding, recovery and focusing on real-time operations. These aspects were not addressed in the study.

Tushev (2018) did a research on the successful implementation of supply chain management functions on key players in the manufacturing sector in Estonia. The research was done through surveys and interviews. The study assessed the implementation of successful supply chain management activities and found that supply chain management implementation should include the installation of a collaborative tool that is accessible to a wide range of professionals and departments involved in the operational chain from production to supply delivery, including suppliers, manufacturers, logistics managers, wholesalers and retailers. The study revealed that senior management commitment as well as clear project goals and requirements are critical success factors for supply chain management implementation in that business. The study focused on the general success factors of supply chain management and

not the key aspects that enables supply chain management practices thrive in times of unforeseen disruptions.

Hadfield (2019) in a study on supply chain immunity. The research was done through surveys and questionnaires. The study found out that supply chain management is about getting things moving. Moving raw materials, components and finished goods across borders over greater distances increases complexity. Effective supply chain infrastructure must be in place and be responsive enough to deal with late deliveries and non-compliant suppliers. According to the survey, several large global corporations such as Unilever, are increasingly embracing both lean and agile methodologies in their various operations. The study only focused on the immunity of the supply chain practices of organizations and does not bring out the factors of resilience specifically on the manufacturing firms.

In the research on the impact of resilience of supply chain management on organizational performance among selected manufacturing enterprises in Nairobi, Kosgey (2021) found out that information management had a beneficial impact on organizational performance. Information sharing improves collaboration among supply chain partners, as well as connectivity, which reduces customer demand variations and uncertainties, resulting in improved organizational performance. Organizations must form strategic alliances and partnerships with suppliers and customers in order to thrive in today's global economy. The study concluded that in today's dynamic and competitive climate, it is critical to underline the necessity of maintaining and sustaining supply chain resilience. However, the study did not evaluate the leading supply chain management practices that should be adopted by manufacturing companies to build capacity and overcome disruptions.

In a study on resilience among Kenyan manufacturing enterprises, Wamalwa and Ochola (2022) found out that resilient organizations notice early crisis signs and respond rapidly hence avoiding escalation. The study was done through questionnaires. The study investigated how human capital skills, knowledge management, physical assets and financial resources influence organizational resiliency. Cognitive endowments enable people and organizations to detect, interpret possible disruptions and apply important insights in novel and flexible ways. It also enables them combine, deploy knowledge and action repertoires to address challenges. By considering the overall performance of manufacturing firms on

aspects of resilience, the study did not evaluate the contribution of supply chain management practices as an input of firm's resilience.

2.5 Summary of Literature and Research Gaps

The empirical literature review is summarized in Table 2.1. It describes the study, methodology, research findings, research gaps, and how the current study addresses the research gaps.

Table 2. 1: Summary of Literature and Research Gaps.

Author(s)	Research Focus	Methodology	Research Outcomes	Study Gaps	How current study addressed the gaps
Sundram (2011)	Supply Chain Practices in the Electronics industry	Survey of 125 electronics firms in Malaysia	Manufacturing businesses should establish SCM capabilities to improve supply chain performance, beginning with increasing their level of information sharing and quality.	Failed to outline the ways of countering information breakdown among the supply chain players in manufacturing firms	Evaluating the impact of SCM Practices on resilience.
Collin & Lorenzin (2013) Jenkins (2020)	Mobile infrastructure industry, Case study of Nokia Networks	Questionnaires and Survey	Demand and project planning are important components in boosting supply agility and assisting organizations in meeting consumer demand for products while eliminating excess inventory and preventing supply chain disruptions.	Didn't elaborate how the customer expectations can be incorporated in planning.	Addressed through Customer focused distribution.

Source: Researcher (2023)

Summary of Literature and Research Gaps

Author(s)	Research Focus	Methodology	Research Outcomes	Study Gaps	How current study addressed the gaps
Mbondo, Okibo & Mogwambo (2015)	Physical distribution strategies on Firm Performance in print media industry in Kenya	Questionnaires and Survey	Physical distribution strategies have a significant impact on firm performance and are an important marketing function that describes the marketing activities associated with the movement of raw materials from suppliers to the factory and finished goods from the end of the production line to the final consumer/user.	Failure to treat physical distribution in a functional perspective of anticipating, withstanding, recovery and focusing on real-time operations	Addressing Physical Distribution as a function of building resilience of Manufacturing firms.
Tushev (2018)	Successful implementation of SCM activities on Key players in the manufacturing sector in Estonia	Survey and Interviews	SCM implementation should comprise the installation of a collaborative tool that is accessible to all individuals and departments involved in the operational chain from production to supply delivery, including suppliers, manufacturers, logistics managers, wholesalers, and retailers.	Focused on the general success factors of SCM and not the specific aspects SCM Practices that enables Manufacturing firms thrive in times of unforeseen disruptions.	Elaborating the contribution of SCM practices implementation.
Hadfield (2019)	Supply chain immunity of manufacturing firms in United Kingdom	Surveys and Questionnaires	Manufacturing sector, should be agile whereby supply chain must be responsive sufficient to deal with late deliveries and non-compliant suppliers	Only focused on the Immunity of the supply chain of the organizations and doesn't bring out the factors of resilience on the manufacturing firms in specific.	Evaluating the factors of SCM practices that build resilience of manufacturing firms.

Source: Researcher (2023)

Summary of Literature and Research Gaps

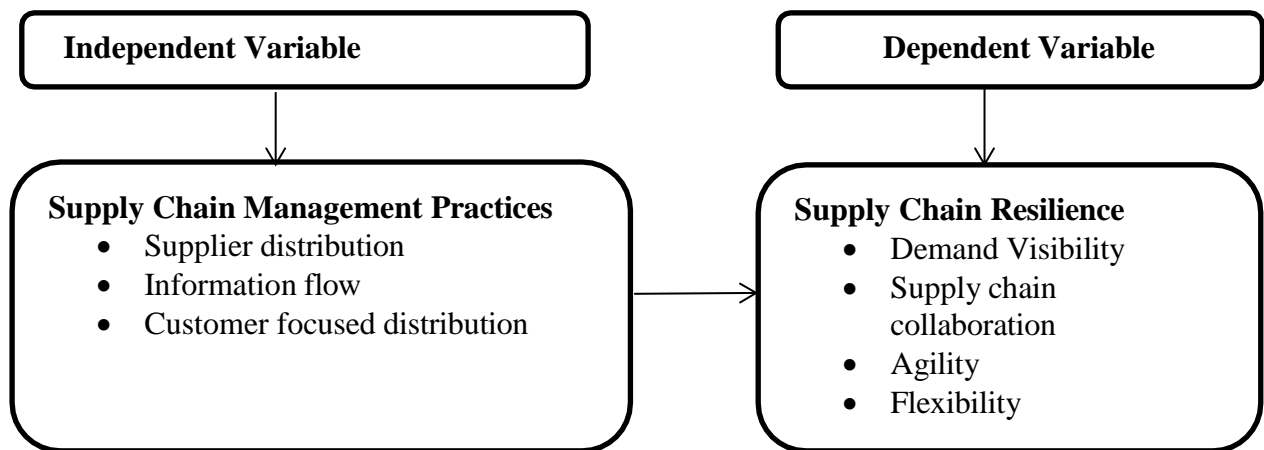
Author(s)	Research Focus	Methodology	Research Outcomes	Study Gaps	How current study addressed the gaps
Kosgey (2021)	Influence of supply chain resilience on organizational performance among selected manufacturing companies in Nairobi	Multiple linear regression analysis questionnaires issued to 278 Purchasing Managers	Information management positively affects organizational performance & there is need for organization to develop strategic alliances and partnerships with customers and suppliers.	Did not outline the leading SCM practices that should be implemented by manufacturing firms that will build capacity to counter any form of disruption.	Outlining the SCM practices that contribute to firms resilience.
Wamalwa & Ochola (2022)	Resilience among manufacturing companies in Kenya	Linear regression analysis Questionnaires issued to a Sample of 138 Firms	Resilient organizations notice early warning signs of a crisis and respond rapidly, avoiding escalation.	Did not evaluate the contribution of supply chain management practices as an input of firm's resilience.	Evaluating the SCM practices that contributes to firms resilience

Source: Researcher (2023)

2.6 Conceptual Framework

The independent variable for the research is supply chain management practices, whose dimensions are supplier distribution, information flow and customer focused distribution. The dependent variable is supply chain resilience, which will be measured in four aspects; demand visibility, supply chain collaboration, agility and flexibility. The key goal for this research is to find the impact of supply chain management practices on the resilience of manufacturing companies in Kenya during the covid-19 era. The conceptual model is presented in figure 2.1

Figure 2.1: Conceptual Model



Source: Researcher (2023)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter outlines the research methodology used in the research. It outlines the study design, the population targeted, and collection of data methods and data analysis techniques.

3.2 Research Design

The research adopted a descriptive research strategy. Descriptive research design was preferred by the researcher as it helps in getting data through observation, describing, recording and analysis. The use of the descriptive research design is justified because it helps the researcher describe the supply chain management practices implemented in manufacturing companies and how they have contributed to the resilience of those firms to challenges posed by Covid-19. According to Ghauri and Gronhaug (2005), research design requires developing a specific plan or specifying a data collection framework and conducting a successful statistical analysis that includes the study approach and the objectives that are important to the researcher.

3.3 Population of the Study

The population of the study was manufacturing firms in Nairobi County, Kenya. It consisted of fourteen strata, each representing a sector in the manufacturing industry. The sectors are defined based on the United Nations Development Classification (UNIDO) classification, and the type of raw materials respective companies manufacture (KAM, 2022). This study used stratified random sampling. Since the population is heterogeneous, stratified random sampling is necessary; to meet representatives of the population. According to Kothari (2004), a representative sample must include at least 10% of the target population. The researcher will take 30 percent of the target population of 248 firms, yielding a total of 76 firms in order to improve the response rate and hence representative.

Table 3.1: Sample Population**Source Kenya Association of Manufacturers (2022)**

Sector	Target Population	Sample
Agriculture/Agro Processing	14	4
Automotive	8	2
Chemicals and Allied	21	7
Energy, Electrical & Electronics	34	10
Plastics and Rubber	30	9
Textiles & Apparels	24	7
Timber	12	4
Pharmaceuticals & Medical Equipment	12	4
Metal and Allied	16	5
Leather and Footwear	7	2
Food & Beverages	45	14
Paper	20	6
Building, Mining and Construction	5	2
Total	248	76

Source Kenya Association of Manufacturers (2022)

3.4 Data Collection

The research will rely on primary data. The data will be collected through questionnaires divided into three sections. The sections of the questionnaire will be as follows; section A will obtain general information. Section B will obtain information about the supply chain management practices implemented by manufacturing companies in Nairobi, while section C will gather information about the influence of supply chain management practices on the

resilience of manufacturing companies. The respondents will be procurement or operations managers in the manufacturing companies targeted. The questionnaires were administered through “drop and pick later” method.

3.5 Data Analysis

Data collected from the questionnaires were checked and assessed for completeness and accuracy. Data collected for general information and that for objective one which was determine the supply chain management practices implemented by manufacturing companies in Kenya was analyzed using descriptive statistics. Data for the second objective on defining the impact of practices on the resilience of manufacturing companies in Nairobi, Kenya amid covid-19 pandemic was analyzed using correlation and regression analysis. The regression model is as below;

$$Y = a + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + \epsilon$$

Where; Y = Supply chain resilience index as measured using demand visibility, supply chain collaboration, agility and flexibility.

a = Constant

X₁ = Supplier Distribution

X₂ = Information Flow

X₃ = Customer focused distribution

ε = error term

Table 3.2: Summary of Data Collection and Techniques of Analysis

Objective	Questionnaire	Data Analysis
General info	Section A	Descriptive statistics
To determine the SCM practices implemented by manufacturing companies in Kenya	Section B	Descriptive statistics
To establish the impact of SCM practices on the resilience of supply chain of manufacturing companies in Kenya amid Covid-19 Pandemic	Section C	Correlation and regression analysis

Source: Researcher (2023)

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter analyzed and interpreted data based on the literature review. Tables were used to present the results which were then discussed at the end of the chapter.

4.2 Response Rate

Seventy-six questionnaires were issued to procurement, operations managers or their equivalent in the various manufacturing companies targeted. Forty-one questionnaires were fully filled and returned for analysis resulting response rate of 54%. Mugenda and Mugenda (2003) stated that a response rate of 50% is satisfactory for data analysis. Hence the response rate meets this threshold.

4.3 Background Information

The demographic information that respondents were requested to present were their gender, age, level of education, years they have worked in the company and the duration to which the company has been in existence. The results are presented in the following subsections.

4.3.1 Gender

The respondents were requested to indicate their gender as showed in Table 4.1.

Table 4. 1 Gender of the respondents

Gender	Frequency	Percentage
Male	25	61%
Female	16	39%
Total	41	100%

Source: Researcher (2023)

The outcome showed that the majority of the respondents are male with 25 in number resulting in 61% of the sample population while the minority are female being 16 in number with 39% of the population. This indicates that male gender dominates employment in manufacturing firms in Nairobi. Hence male gender will inform he results of this research.

4.3.2 Age

The respondents were requested to indicate their age. The results are shown in table 4.2

Table 4. 2: Respondents Age

Age (years)	Frequency	Percentage
25-35	13	32%
26-36	18	44%
37-47	9	22%
Above 47	1	2%
Total	41	100%

Source: Researcher (2023)

Age of the respondents was key factor in understanding their working relationship in the various manufacturing firms. The respondents with age between 25 and 35 years were 13 representing 32%. Majority of the respondents were from the age of 26 to 36 being 18 in number representing 44%. Those who were between age 37 and 47 were 9 in number which is equivalent to 22% while the minority age group were those that are above 47 years making up 2% of the population. From these results, it is an indication that the majority of employees in manufacturing firms in Nairobi ranges between 26 and 36 years which is a youthful age hence understood the content and provided accurate response.

4.3.3 Level of Education

The respondents were requested to indicate their level of education and this is shown in Table 4.3.

Table 4. 3 Level of Education.

Level of Education	Frequency	Percentage
College Diploma	6	15%
Undergraduate	17	41%
Post Graduate	18	44%
Total	41	100%

Source: Researcher (2023)

The level of education inquired was important in determining the level of understanding of the subject matter being responded to. The outcome indicated that the majority of the participants were post graduates with the highest number of 18 representing 44%. Those who had undergraduate level of education were 17 (41%) which is the second highest while the least group had college diploma with 6 respondents representing 15%. These results indicates

that the participants have enough knowledge about the subject matter in the manufacturing firms in Nairobi since majority had post graduate as their highest level of education.

4.3.4 Years Worked in the Company

The respondents were requested to indicate the number of years they have worked in that company. This is displayed in table 4.4

Table 4. 4: Years Worked in the Company

Years Worked	Frequency	Percentage
1-5	8	19%
6-10	25	61%
10-15	6	15%
Above 15	2	5%
Total	41	100%

Source: Researcher (2023)

The outcome indicated 25 (61%) of the participants in the manufacturing firms in Nairobi county had a working experience of between 6 to 10 years which is the highest representation. This was followed by those with an experience ranging between 1 and 5 years (20%) while those that ranged between 10 and 15 years were 6 representing 15% of the respondents. The least group of participants had an experience of above 15 years in the company having 2 respondents representing 5%. The results show that majority of respondents had enough experience in the manufacturing firm they worked in and are able to provide realistic information concerning the subject matter of the study.

4.3.5 Years the Firm has been in existence

The respondents were requested to indicate period the company has been functional and this is shown in Table 4.5

Years the Firm has been in existence	Frequency	Percentage
5-10	5	12%

11-20	20	49%
21-30	15	37%
Above 31	1	2%
Total	41	100%

Table 4. 5: Years the Firm has been in existence

Source: Researcher (2023)

Majority of the firms had existed for a period ranging from 11 to 20 years were 20 representing 49% of the population. Those that had existed for a period between 21 and 30 were 15 (37%) while those that existed for 5 to 10 years were 5 in number representing 12%. The minority of firms had existed for over 31 years representing 2% of the sample population. These results indicates that on average the sampled firms had existed for substantial number of years hence have the adequate practical experience on implementation of supply chain management practices.

4.4 Extent of implementation of Supply Chain Management Practices

The first objective of the study sought to determine the extent to which supply chain management practices have been implemented by manufacturing firms in Nairobi County.

4.4.1 Supply chain management practices

The research sought to determine the extent that supply chain management practices have been implemented by manufacturing firms in Nairobi County. The outcomes are presented in table 4.6

Table 4. 6 Descriptive Statistics

	Mean	Std. Deviation
Supplier distribution	3.006	.539
Information flow	2.975	.707
Customer focused distribution	2.938	.763

Source: Study data (2023)

From table 4.6 Supplier Distribution (M=3.006, SD 0.539), Information Flow (M=2.975, SD=0.707), Customer Focused Distribution (M=2.938, SD=0.763) as supply chain management practices were implemented to a moderate extent by manufacturing firms in Nairobi County.

4.4.2 Supply Chain Management practices and Demand Visibility

To determine the relationship between SCM practices and demand visibility, multiple regression was done on the data obtained. The findings are in table 4.7, 4.8 and 4.9

Table 4. 7: Regression Coefficients of Demand Visibility

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.144	1.088		2.970	.002
	Supplier distribution	.527	.203	.333	3.101	.001
	Information flow	.164	.177	.058	2.361	.012
	Customer focused distribution	.172	.189	.062	2.382	.010

a. Dependent variable; Demand Visibility

Source: Study Data (2023)

The regression equation with cost as the dependent variable is as follows;

$$Y=2.144+0.527X_1+0.164X_2+0.172X_3$$

Where;

Y=dependent variable (Demand visibility)

X₁=Supplier Distribution

X₂=Information Flow

X₃=Customer Focused Distribution

The coefficient value of 0.527 shows that any increase in a unit of supplier distribution will lead to demand visibility rise by 52.7%. T values for supplier distribution (t= 3.101) were above 1.96 and p-value lower than 0.05 confirming that it influences demand visibility. A unit increase in information flow causes an increase in demand visibility by 16.4% with t value (t=2.362, p value lower than 0.05. It can also be noted that information flow has influences on demand visibility. The influence was significant as illustrated by the T-value of

2.361. It was found out that an increase in a unit of customer focused distribution, will result to a rise in demand visibility with a coefficient value of 0.172 (T=2.382, p=0.010). Supplier distribution had the highest impact on the demand visibility followed by customer focused distribution then information flow. All the study parameters were significant since their p-values were lower than 0.05 and T-values above 1.96. This implies that Supplier Distribution, Information Flow and Customer Focused Distribution have significant influence on demand visibility in the resilience of manufacturing firms in Nairobi County amid Covid 19 pandemic.

Table 4. 8: Model Summary of Demand Visibility

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.432 ^a	.187	.136	.562

a. Predictors: (Constant), Supplier Distribution, Information Flow, Customer Focused Distribution

Source: Study Data (2023)

The results from Table 4.8 shows that supply chain management practices had a combined impact on demand visibility of resilience as displayed by a value of R which is 0.432. The R squared of 0.187 illustrates that the independent variable accounting for 18.7% of the variance on demand visibility. Other factors that are not captured in the study affect demand visibility on resilience among manufacturing firms in Nairobi by 81.3%. The ANOVA outcomes are displayed in table 4.9.

Table 4. 9: ANOVA for Demand Visibility

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.949	3	.316	3.484	.000 ^b
	Residual	7.673	37	.213		
	Total	8.622	40			

a. Demand visibility

b. Predictors: (Constant), Supplier Distribution, Information Flow, Customer Focused Distribution

Source: Study Data (2023)

The results in the ANOVA indicate the significance in the complete model because the level of significance is 0.000 which is lower than 0.05. It is supported by the F calculated value of

3.484 which is higher than the critical value of 2.021. It is an indication that Supply Chain Management Practices improves Demand Visibility.

4.4.3 Supply Chain Management Practices and Supply Chain Collaboration

The relationship between SCM practices and supply chain collaboration was determined through regression analysis. The results are shown in table 4,10,4.11 and 4.12

Table 4. 10: Regression Coefficients of Supply Chain Collaboration

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.707	.998		5.718	.000
	Supplier distribution	.218	.186	.180	3.170	.003
	Information flow	.367	.162	.356	4.261	.001
	Customer focused distribution	.049	.173	.045	2.284	.018

a. Supply chain collaboration

Source: Study Data (2023)

The regression equation with Supply Chain Collaboration as the independent variable is;

$$Y=5.707+0.218X_1+0.367X_2+0.049X_3$$

Where;

Y=Dependent variable (Supply Chain Collaboration)

X₁=Supplier distribution

X₂=Information flow

X₃=Customer focused distribution

The coefficient value of 0.218 shows that any increase in a unit of Supplier Distribution will lead to a rise Supply Chain Collaboration by 21.8%. The connection was significant as well since the T value was 3.170 which is above 1.96 and p-value lower than 0.05. A unit increase

in Information Flow causes an increase in Supply Chain Collaboration by 36.7%. The relationship was significant as illustrated by the T-value of 4.261. An increase in a unit of customer focused distribution, will result to a rise in Supply Chain Collaboration with a value of 0.049 (T=2.284, p=0.018). All the study parameters were significant since their p-values were lower than 0.05 and T-values above 1.96 hence concluding that Supplier Distribution, Information Flow and Customer Focused Distribution all have a significant relationship and influences Supply Chain Collaboration on the resilience of manufacturing firms in Nairobi County amid Covid 19 pandemic.

Table 4. 11: Model Summary of Supply Chain Collaboration

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.499 ^a	.249	.189	.523

a. Predictors: (Constant), Supplier Distribution, Information Flow, Customer Focused Distribution.

Source: Study Data (2023)

The results from Table 4.11 shows that supply chain management practices had a combined impact on Supply Chain Collaboration by a value of R which is 0.499. The R squared of 0.249 illustrates that the independent variable accounting for 24.9% of the variance on Supply Chain Collaboration on resilience. Other factors that are not captured in the study affect Supply Chain Collaboration on resilience among manufacturing firms in Nairobi by 75.1%

Table 4. 12: ANOVA for Supply Chain Collaboration

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.225	3	.408	2.278	.020 ^b
	Residual	6.453	37	.179		
	Total	7.678	40			

a. Supply Chain Collaboration

b. Predictors: (Constant), supplier distribution, information flow, customer focused distribution

Source: Study Data (2023)

The results in the ANOVA indicate the significance in the complete model because the level of significance is 0.000 which is lower than 0.05. It is supported by the F calculated value of 2.278 which is higher than the critical value of 2.021. It is an indication that Supply Chain Management Practices improves Supply Chain Collaboration on resilience among manufacturing firms in Nairobi County.

4.4.4 Supply Chain Management Practices and Agility

The relationship between Supply chain management practices and Agility was determined through regression of the data. The outcome is shown in table 4.13, 4.14 and 4.15

Table 4. 13: Regression Coefficients of Agility

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.199	1.106		3.797	.001
	Supplier distribution	-.041	.207	-.033	-.199	.843
	Information flow	.061	.180	.057	.339	.736
	Customer focused distribution	-.213	.192	-.188	-1.113	.273

a. Agility

Source: Study Data (2023)

The regression equation is as follows;

$$Y=4.199-0.041X_1+0.061X_2-0.213X_3$$

Where;

Y=Dependent variable (Agility), X₁=Supplier Distribution , X₂=Information Flow

X₃=Customer focused distribution

The coefficient value of -0.041 shows that any change in a unit of supplier distribution will lead to a decrease in agility by 4.1%. The relationship was not significant since the T value was -0.199 which is below 1.96 and p-value more than 0.05 hence bearing a negative

influence on agility of business resilience among manufacturing firms in Nairobi. A unit increase in information flow causes an increase in agility by 6.1%. It can be noted that information flow has a positive relationship with agility. The relationship was not significant as illustrated by the T-value of 0.339. It was found that a change in a unit of customer focused distribution, will result to a decrease in Agility by a value of 0.213 (T=-1.113, p=0.273).

All the study parameters were not significant since their p-values were more than 0.05 and T-values below 1.96 hence it was concluded that Customer Focused Distribution had the highest impact on the agility in the resilience of manufacturing firms in Nairobi amid Covid 19, followed by Information Flow then Supplier Distribution.

Table 4. 14: Model Summary of Agility

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.190 ^a	.036	-.044	.469

a. Predictors: (Constant), Supplier Distribution, Information Flow, Customer Focused Distribution

Source: Study Data (2023)

The results from Table 4.14 shows that supply chain management practices had a combined impact on Agility as displayed by value of R which is 0.190. The R squared of 0.036 illustrates that the independent variable accounts for 3.6% of the variance on Agility .Other factors that are not captured in the study affect Agility in resilience among manufacturing firms in Nairobi County by 96.4%. The ANOVA outcomes are displayed in table 4.15

Table 4. 15: ANOVA for Agility

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.298	3	.099	.451	.718 ^b
	Residual	7.922	37	.220		
	Total	8.219	40			

a. Agility

b. Predictors: (Constant), Supplier Distribution, Information Flow, Customer Focused Distribution

Source: Study Data (2023) The results in the ANOVA indicate non-significance in the complete model because the level of significance is 0.718 which is higher than 0.05. It is also confirmed by the F calculated value of 0.451 which is lower than the critical value of 2.021. Thus the study model is appropriate for predicting Agility. It is an indication that supply chain management practices improves agility of resilience among manufacturing firms in Nairobi, Kenya.

4.4.5 Supply Chain Management Practices and Flexibility

The relationship between SCM practices and Flexibility was determined through multiple regression of the data. The results are shown in table 4.16, 4.17 and 4.18

Table 4. 16: Regression Coefficients for Flexibility

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.567	.712		5.010	.000
	Supplier distribution	.105	.133	.006	2.035	.042
	Information flow	.251	.116	.218	3.308	.004
	Customer Focused distribution	.216	.123	.157	2.943	.006

a. Flexibility

Source: Study Data (2022)

The regression equation is as follows;

$$Y=3.567+0.105X_1+0.251X_2+0.216X_3$$

Where;

Y=Dependent variable (Flexibility), X₁=Supplier Distribution, X₂=Information flow, X₃=Customer Focused Distribution

The coefficient value of 0.105 shows that any increase in a unit of Supplier Distribution will lead flexibility of business resilience among manufacturing firms in Nairobi amid Covid-19 to rise by 10.5%. The connection was significant since the T value was 2.035 which is above 1.96 and p-value lower than 0.05 hence indicating a positive influence on Flexibility in resilience of Manufacturing firms in Nairobi County. A unit increase in Information Flow causes an increase in Flexibility by 25.1%. This denotes that information flow has a positive influence on with Flexibility .The connection was significant as illustrated by the T-value of 3.308. It was also found that an increase in unit of customer focused distribution, will result to a rise in flexibility of with a value of 0.216 (T=2.943, p=0.006).Indicating a positive relationship.

All the study parameters were significant since their p-values were lower than 0.05 and T-values above 1.96 hence concluded that Information Flow, Customer Focused Distribution and Supplier Distribution a positive relationship and influences Flexibility on resilience of manufacturing firms in Nairobi amid Covid 19.

Table 4. 17: Model Summary of Flexibility

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.340 ^a	.116	.121	.402

a. Predictors: (Constant), Supplier Distribution, Information Flow, Customer Focused Distribution

Source: Study (2023)

The results from Table 4.17 shows that supply chain management practices had a combined impact on Flexibility as displayed by a value of R which is 0.340. The R squared is 0.116 illustrating that the independent variable account for 11.6% of the variance on flexibility. Other factors that are not captured in the study affect flexibility of resilience among manufacturing firms in Nairobi County by 88.4%. The ANOVA findings are displayed in table 4.18

Table 4. 18: ANOVA for Flexibility

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.200	3	.067	2.732	.000 ^b
	Residual	3.284	37	.091		
	Total	3.484	40			

a. Dependent Variable: Flexibility

b. Predictors: (Constant), Supplier Distribution, Information flow and Customer Focused distribution

Source: Study Data (2023)

The results in the ANOVA indicate the significance in the complete model because the level of significance is 0.000 which is lower than 0.05. It is supported by the F calculated value of 2.732 which is higher than the critical value of 2.021. Hence the model is appropriate in predicting Flexibility It is an indication that Supply Chain Management Practices improves flexibility on resilience in manufacturing firms in Nairobi County amid Covid 19 pandemic.

4.4.6 Supply Chain Management Practices and Supply Chain Resilience

The study sought to obtain the overall relationship between Supply Chain Management Practices and supply chain resilience of manufacturing companies in Nairobi County in the face of the Covid 19 pandemic. This is a composite measure on the SPM practices and resilience to a certain the influence of SPM practices on the resilience of manufacturing companies in general. Data was regressed and outcomes illustrated.

Table 4. 19 Regression of Supply Chain Resilience

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.432	.382		5.682	.006
	Supplier Distribution	.321	.204	.222	4.154	.000
	Information Flow	.268	.148	.064	2.581	.018
	Customer Focused Distribution	.176	.158	.072	2.275	.028

a. Dependent Variable: Supply Chain Resilience

Source: Study Data (2023)

The regression equation is as follows;

$$Y = 5.432 + .321X_1 + .268X_2 + .176X_3$$

Where;

Y = Supply Chain Resilience

X₁= Supplier Distribution

X₂= Information Flow

X₃= Customer Focused Distribution

From table 4.19, Supply Chain Management Practices (Supplier Distribution (t=4.154, P<0.05), Information Flow (t=2.581, P<0.05) and Customer Focused Distribution (t=2.275, P<0.05) influences supply chain resilience of Manufacturing firms in Nairobi County, Kenya. All the study parameters were significant since their p-values were lower than 0.05 and T-values above 1.96 hence concluded that Information Flow, Customer Focused Distribution and Supplier Distribution a positive relationship and influences the supply chain resilience of manufacturing firms in Nairobi amid Covid 19.

Table 4. 20 Model Summary for Supply Chain Resilience

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.364 ^a	.123	.132	.414

a. Predictors: (Constant), Supplier Distribution, Information Flow, Customer Focused Distribution

Source: Study (2022)

The results from Table 4.20 shows that supply chain management practices had a combined impact on supply chain resilience of manufacturing firms as displayed by a value of R which is 0.364. The R squared is 0.123 illustrating that the independent variable account for 12.3% of the variance on supply chain management practices. Other factors that are not captured in the study affect the supply chain resilience of manufacturing firms in Nairobi County by 87.7%. The ANOVA findings are displayed in table 4.18.

Table 4. 19 ANOVA for Composite Measure

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.765	3	.658	2.342	.000 ^b
	Residual	6.254	37	.257		
	Total	7.019	40			

a: Dependent Variable: Supply Chain Resilience

b. Predictors: (Constant), Supplier Distribution, Information flow and Customer Focused Distribution.

Source: Study Data (2023).

The results in the ANOVA indicate the significance in the complete model because the level of significance is 0.000 which is lower than 0.05. It is supported by the F calculated value of 2.342 which is higher than the critical value of 2.021. Hence the model is appropriate in predicting Supply chain management practices and supply chain resilience of manufacturing firms in Nairobi County, Kenya in the face of Covid 19 Pandemic.

4.5 Discussion of Research Findings

The study was based on two objectives which were achieved in the research. Objective one, was to find out the supply chain management practices executed by manufacturing companies in Nairobi County. It was found out that Supplier Distribution, Information Flow and Customer Focused Distribution were executed to a moderate extent hence achieving objective One of the study. The findings are supported by Systems Theory which illustrates that supply chain requires a holistic approach of the suppliers, customers and the entire firm to create synergy and maximize the inputs towards resilience.

Supplier Distribution was adopted to a large extent and was ranked the first in adoption with a Mean of 3.006 and Standard Deviation of 0.539. The outcome is in tandem with that of Govindian (2010) who found out that supplier distribution activities of one company in the supply chain can impact the general supply chain effectiveness, receptiveness and productivity.

Secondly ranked by the Manufacturing companies in Nairobi County was Information flow which was adopted to a moderate extent also. This was indicated by the mean of 2.975 and standard deviation of 0.707. The outcome agrees with that of Tathee (2007) who pointed out that Information flow across business partners allows businesses to make better decisions and take action based on increased visibility. It is essential for business associates to have suitable, competitively inter-firm data systems (Bowersox, 2003).

The last ranked SPM practice by manufacturing firms is Customer Focused Distribution and was also largely adopted with the mean of 2.938 and Standard deviation of 0.763. Engel Seth (2012) stated that customer driven distribution is developed with the needs of customer in mind hence agreeing with the conclusions of the study. Customer focused distribution

creates more satisfaction on the part of customers, drives demand and inform specifications to manufacturing firms(Dough &Anneli,2016).

The second objective of the study focused at finding out the influence of supply chain management practices on the resilience of manufacturing companies in Nairobi County, Kenya in the face of Covid 19 Pandemic. Multiple regressions were carried out and the outcome indicates that supply chain management practices moderately influence resilience of manufacturing firms in Nairobi as indicated by supplier distribution, information flow and customer focused distribution. From regression coefficients, it was determined that supplier distribution, information flow and customer focused distribution were positive and significant predictors of demand visibility, supply chain collaboration and flexibility. These results were in line with that of Ullah, Zahid, Rizvi, Qureshi, and Ali (2022) that found a positive relationship between supply chain management practices and resilience.

On the other hand, supplier distribution, information flow, and customer focused distribution were not significant predictors of agility on the resilience of manufacturing firms. This is in line with the outcome of Brusset (2016) that found no relationship between supply chain management practices and agility on resilience of a company. The results of this study agree with that of Kinley & Fuller (2021) which emphasized on automation of distribution processes and emphasized that in building resilience of manufacturing firms, physical distributions should be treated in a functional perspective of anticipating, withstanding, recovery and focusing on real-time operations, which were not addressed in this study. This implies that objective two of the study was also achieved. The findings are supported by Systems Theory which outlines that supply chain requires a holistic approach of the suppliers, customers and the entire firm to create synergy and maximize the inputs towards resilience.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This section provides summary of the findings, conclusion and recommendations from the study for further research. Limitations of the study have also been outlined.

5.2 Summary of the Findings

The study sought to find Supply Chain Management Practices and the resilience of manufacturing firms in Nairobi County, Kenya amid covid-19 pandemic. Two objectives were set out to guide the study which were to find out the Supply Chain Management Practices executed by manufacturing companies in Nairobi County, Kenya and the second objective was to find out the influence of Supply Chain Management Practices on the Resilience of manufacturing companies in Nairobi County in the face of Covid-19 pandemic. Descriptive design was adopted and the study was carried focused on manufacturing companies in Nairobi County, Kenya.

The first objective of the study was to find out the supply chain management practices executed by manufacturing forms in Nairobi County. It was ascertained that Supplier Distribution, Information Flow and Customer Focused Distribution were adopted to a moderate extent. On Supplier distribution, it was ascertained that order processing originated from firms distributors while manufacturing of new products are informed by the market demands as advised by suppliers. Delivery of ordered items are done on scheduled network and supplier advice is taken seriously to a large extent. On information Flow, it was ascertained that real time passing of information across the supply chain partners and use of electronic order processing were implemented to a large extent. In the same practice, responding of queries quickly and database customers database referencing were adopted to a large extent. Regarding Customer Focused Distribution, it was ascertained that distribution of finished products was informed by customer requirements and firm partnering with its suppliers in providing storage was also adopted to a large extent. It was also noted that products packaging was driven by customer requirements while prompt response to customer queries was adopted to a moderate extent.

Objective two sought to determine the effect of Supply Chain Management Practices on the Resilience of Manufacturing companies in Nairobi County, Kenya amid Covid-19 pandemic. Three regression analysis were carried out. The outcome indicates that Supply Chain Management Practices influences Demand Visibility, Supply Chain Collaboration, Agility and Flexibility. It was found that the supply chain resilience of manufacturing was largely influenced by the adoption and implementation of the Supply Chain Management Practices. Supplier distribution, Information flow and Customer Focused Distribution had significant influence on the Resilience of manufacturing companies in Nairobi County, Kenya

5.3 Conclusion

The aim of the study was to find out the effect of Supply Chain Management Practices on the Resilience of Manufacturing Firms in Nairobi County, Kenya amid Covid-19 Pandemic. The results have revealed a positive and significant relationship between Supply Chain Management Practices on Resilience of Manufacturing companies in Nairobi County, Kenya.

Objective one of the study was to find out the supply chain management practices executed by manufacturing forms in Nairobi County, Kenya. It was ascertained that Supplier Distribution, Information Flow and Customer Focused Distribution were executed to a moderate extent by manufacturing companies in Nairobi County hence the first objective was met.

Objective two of the study which was to find out the effect of Supply Chain Management Practices on the Resilience of manufacturing firms in Nairobi County was also achieved. The multiple regression done indicated that Supplier Distribution, Information Flow and Customer Focused Distribution greatly impacts demand visibility, supply chain collaboration, agility and flexibility as factors of resilience of Manufacturing Firms in Nairobi County.

5.4 Recommendations from the Study

The study found that implementation of Supply Chain Management Practices positively influences the Resilience of manufacturing companies hence recommends other players in the supply chain to execute the SPM Practices. This will enable such firms build resilience that enable them overcome business disruptions. For Manufacturing Firms, adopting Supplier Distribution will improve on demand visibility. Demand patterns of goods will be aligned through proper communication among the supply chain partners.

Through adopting Information Flow, decisions makers in manufacturing companies will be able to pass information in real time across the supply chain partners. This will also enable them adopt electronic order processing and in developing customers data base hence improving overall efficiency and resilience of Manufacturing Firms. Through Information Flow practice, manufacturing firms will be able to develop alternative routing or shipment modes for goods leading to improved efficiency.

Manufacturing Firms should adopt Customer focused Distribution to ensure that products packaging and distribution are informed by customer requirements only. This will help in handling queries along the supply chain promptly. Through this approach, firm will be able to reduce on lead times, have better collaborations hence enable customers get their products when needed.

5.5 Limitations of the Study

The research was limited to the data collected from the 41 Manufacturing Firms in Nairobi County hence not adequate to make a conclusion on what happens in the entire supply chain system of the manufacturing sector and in other parts of the country. The respondents

expected to provide data were apprehensive on the giving out information of their companies fearing competitors will get access to them. To overcome this limitation, respondents were assured that the data collected would be kept confidential and adopted for academic purposes only. The forwarding letter from the University was provided to the respondents as an assurance of the intent of the research.

The other limitation was access to the premises of the targeted respondents. The Manufacturing firms were guarded and access of visitors was limited. To overcome this limitation, the researcher forwarded the questionnaires through emails to companies that physical access was denied.

Time was also another limiting factor. The respondents were also busy in their duties hence could not complete the questionnaires within the stipulated time. This hindered the study from achieving 100% response rate. To ensure reasonable response rate, regular follow regular were done through phone calls and visits.

5.6 Suggestions for Further Research

The study recommends further studies to be conducted focusing on other variables in the supply chain management and to cover other manufacturing firms in all the counties in Kenya. Further studies can be done on supply chain disruptions not related to covid-19 pandemic. The study also recommends that future studies should cover other challenges experienced in supply chain management including logistics and product management. Upcoming research may add other variables in the study so as to evaluate further other aspects of Supply chain management practices that may help manufacturing in overcoming business disruptions. The input of Technology need to be researched further to find ways of using technology to collaborate all the players in the Supply Chain and how it can enable easy adoption and implementation of Supply Chain Management Practices.

REFERENCES

- Agrawal S., Jamwal A., Gupta S. Effect of COVID-19 on the Indian Economy and SupplyChain. doi: 10.20944/preprints202005.0148.v1. [CrossRef] [Google Scholar]
- Aosa, E., & Machuki, V. N (2011). The effect of the external environment on performance of publicly listed firms in Kenya. *Prime Journal of Business Administration and Management*, 1(7), 205-218.
- Bai C., Sarkis J. A (2013). Grey-based DEMATEL model for evaluating business process management critical success factors. *International Journal of Production Economics*. 2013;146(1):281–292. [Google Scholar]
- Belhadia A., Kamble S.S., Jabbour C.J.C., Ndubisi N.O., Venkatesh M. Manufacturing and service supply chain resilience to the COVID-19 outbreak: Lessons learned from the automobile and airline industries. *Technological Forecasting and Social Change*. 2020;120447 [PMC free article] [PubMed] [Google Scholar]
- Bozarth, C. C., and Handfield, R. B (2013). Introduction to operations and supply chain management. England: Pearson Education Limited
- Business Insider The coronavirus outbreak is disrupting supply chains around the world— Here’s show companies can adjust and prepare.2020. <https://www.businessinsider.com/covid-19-disrupting-global-supply-chains-how-companies-can-react-2020-3> Retrieved March 30, 2020, from
- Carnevale J.B., Hatak I. Employee adjustment and well-being in the era of COVID-19: Implications for human resource management. *Journal of Business Research*. 2020;116:183–187.[PMCfree article] [PubMed] [Google Scholar]

Collin, J., & Lorenzin, D (2013). Plan for supply chain agility at Nokia: Lessons from the mobile infrastructure industry. *International Journal of Physical Distribution & Logistics Management*, 36(6), 418-430.

Gandhi, A. V., Shaikh, A., & Sheorey, P. A (2017). Impact of supply chain management practices on firm performance: Empirical evidence from a developing country. *International Journal of Retail & Distribution Management*, 45(4), 366-384.

Gitonga, A. (2014). *The Influence of Managerial Training Intervention on Performance of Business Kenyan Businesses*. MBA Research Project, University of Nairobi

Govindan K., Mina H., Alavi B. A decision support system for demand management in healthcare supply chains considering the epidemic outbreaks: A case study of coronavirus disease 2019 (COVID-19)

Handfield, R. B., Cousins, P. D., Lawson, B., & Petersen, K. J (2015). How can supply management really improve performance? A knowledge-based model of alignment capabilities. *Journal of Supply Chain Management*, 51(3), 3-17.

<https://blogs.opentext.com/supply-chain-resilience/>

<https://kenyatrade.org> : Manufacturing Companies in Kenya – The Only List You Need! - Kenya Trade

hubs 2020 supply chain resilience - Search (bing.com)

Ivanov D., Dolgui A. Viability of intertwined supply networks: Extending the supply chain resilience angles towards survivability. A position paper motivated by COVID-19 outbreak (2020).

Lengnick-Hall, C.A., & Beck, T.E (2016). Resilience capacity and strategic agility: Prerequisites for thriving in a dynamic environment. In Resilience Engineering Perspectives, Volume 2 (pp. 61-92). CRC Press, 3(09), 46-53.

Lengnick-Hall, C.A., Beck, T.E., & Lengnick-Hall, M.L (2011). Developing a capacity for organizational resilience through strategic human resource management. Human Resource Management Review, 21(3), 243-255.

Mbondo, G. K., Okibo, W. B., & Mogwambo, V. A (2015). Influence of Physical Distribution Strategies on the Performance of Service Firms in Kenya: A Survey Study of Print Media Distribution in South Nyanza Region, Kenya.

Raetze, S., Duchek, S., Kirkman, B.L., & Maynard, M.T (2019). Organizational resilience-A special issue to integrate and broaden a growing literature using multi-level perspectives. Group and Organization Management.

Razdan, H., & Kumar, A. (2020). *Ramping up the supply chain post COVID-19*. KPMG.

Schmitt, A., Den Hartog, D.N., & Belschak, F.D (2016). Transformational leadership and proactive work behaviour: A moderated mediation model including work engagement and job strain. Journal of Occupational and Organizational Psychology, 89(3), 588-610.

Sundram, V. P. K., Ibrahim, A. R., & Gavindaraju, V. G. R. C (2011). Supply chain management practices in electronics industry in Malaysia: Consequences for supply chain performance. Benchmarking: An International Journal, 18(6), 834-855.

Toyota's response to the spread of COVID-19 (Novel Coronavirus) infections | Corporate | Global Newsroom | Toyota Motor Corporation Official Global Website

World Health Organisation: https://www.who.int/health-topics/coronavirus#tab=tab_1

WorldBank (2020) COVID-19 outbreak: Implications on corporate and individual insolvency

Yahaya, O. A. & Lamidi, Y (2015). Empirical evaluation of the financial performance of Nigerian Islamic banks: A case study approach. *International Journal of Accounting Research*, 2(7), 1-13

APPENDIX

Introduction

The questionnaire has been designed to collect data on the SCM Practices and resilience of Manufacturing Firms in Nairobi, Kenya amid Covid-19 Pandemic. Please read through and provide the answers honestly. The data provided is to be used specially for the academic study. Confidentiality is guaranteed.

Instructions:

1. Mark in the box the space given
2. Be free to provide additional info that may help the researcher.

PART A: GENERAL INFO

1. Gender:

a) Male () b) Female ()

2. Your Age (in years) :

25- 35 () 26-36 () 37-47 () Above 47 Years ()

3. Highest education Level:

College Diploma () Undergraduate () Post Graduate ()

4. Years worked in the company:

1-5 () 6-10 () 10-15 () Above 15 Years ()

5. Years the firm has been functional

5-10 () 11-20 () Above 21-30 Years () Above 31 Years ()

PART B: SUPPLY CHAIN MANAGEMENT PRACTICES IMPLEMENTED BY MANUFACTURING COMPANIES IN KENYA.

5. To what extent have the following practices been implemented in your firm? Use **1**-Very Low extent, **2**- Low extent, **3**- Moderate extent, **4** –Great extent, **5** –Very Great Extent.

Supplier Distribution	1	2	3	4	5
Order processing originates from firm's distributors.					
Manufacturing of new products are informed by market demands as advised by suppliers.					
Delivery of ordered items are done on scheduled network					
Supplier advice is taken seriously					
Information Flow	1	2	3	4	5
There is real time passing of information across the supply chain partners.					
The firm uses Electronic order processing					
Queries are responded to quickly					
There is a database of customers for referencing					
Customer Focused Distribution	1	2	3	4	5
Distribution of finished products is informed by customer requirements.					
Firm partners with its suppliers in providing storage services.					
Products packaging is driven by Customer requirement.					
Customer enquiries are responded to promptly					

PART C: EFFECT OF SUPPLY CHAIN MANAGEMENT PRACTICES ON THE RESILIENCE OF MANUFACTURING COMPANIES AMID COVID-19 PANDEMIC.

6. Kindly indicate to what extent implementation of SCM practices have influenced the following aspects of resilience in your organization during covid-19 pandemic period. Kindly use the scale of **1-5**, where; **1**-Very Low extent, **2**- Low extent, **3**- Moderate extent, **4** –Great extent, **5** –Very Great Extent.

Demand Visibility	1	2	3	4	5
Inventory levels were managed to align with fluctuations in demand of goods.					
Demand pattern change was countered by proper communication through aligning of supply chain elements.					
Order fulfillment led to greater customer experience					
Collaboration	1	2	3	4	5
Coordinated responses to disruptions boosted the firm’s capacity to meet customers’ needs.					
Operational efficiencies reduced product cycle times and costs.					
Sharing information and collaborating with suppliers on supply forecasting facilitated consensus among partners and improved accuracy.					
Agility	1	2	3	4	5
The firm was able to quickly detect and respond to changes in market trends.					
Supply chain members shared real-time demand, inventory and production information.					
Customers were served with reliability, even in highly variable conditions.					

Flexibility	1	2	3	4	5
Lead time was reduced by redesigning procurement processes, for example; changing supplier selection criteria from cost focus to speed focus.					
Alternative routing or shipment modes for goods led to improved efficiency.					
Better collaborations were fostered that improved firms output.					
Decrease in time to solve customer complains					
The Customer gets the products/services when they need					

APPENDIX II: MANUFACTURING FIRMS IN NAIROBI, KENYA

No.	Sector	Target Population
1	Agriculture/Agro Processing	14
2	Automotive	8
3	Chemicals and Allied	21
4	Energy, Electrical & Electronics	34
5	Plastics and Rubber	30
6	Textiles & Apparels	24
7	Timber	12
8	Pharmaceuticals & Medical Equipment	12
9	Metal and Allied	16
10	Leather and Footwear	7
11	Food & Beverages	45
12	Paper	20
13	Building, Mining and Construction	5
	Total	248

Source: Kenya Association of Manufacturers (2022)

SUPPLY CHAIN MANAGEMENT PRACTICES AND RESILIENCE OF MANUFACTURING FIRMS IN NAIROBI COUNTY, KENYA AMID COVID-19 PANDEMIC

ORIGINALITY REPORT NAME: Dr. Kipkorir M. Chirchir



Date: 26/11/2023

14%

SIMILARITY INDEX

13%

INTERNET SOURCES

4%

PUBLICATIONS

6%

STUDENT PAPERS

PRIMARY SOURCES

1	erepository.uonbi.ac.ke Internet Source	5%
2	erepository.uonbi.ac.ke:8080 Internet Source	1%
3	Submitted to Mount Kenya University Student Paper	1%
4	Submitted to De Montfort University Student Paper	<1%
5	www.researchgate.net Internet Source	<1%
6	cusitjournals.com Internet Source	<1%
7	repository.kemu.ac.ke:8080 Internet Source	<1%
8	usir.salford.ac.uk Internet Source	<1%

oro.open.ac.uk