



SCHOOL OF COMMERCE
DEPARTMENT OF LOGISTICS & SUPPLY CHAIN
MANAGEMENT

INVESTIGATING THE DRIVERS OF SUSTAINABLE SUPPLY CHAIN
MANAGEMENT PRACTICES: A CASE STUDY OF CGF CROWN CORK
MANUFACTURING PLC

BY: ABRAHAM MULUGETA

A Thesis Submitted In Partial Fulfilment Of the Requirements For The Award Of
Degree Of Masters In Logistics & Supply Chain Management

ADVISOR:

KIRUBEL BRUCK (PH.D.)

June 2024
Addis Ababa
Ethiopia

ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
SCHOOL OF COMMERCE

This is to certify that Abraham Mulugeta completed the research thesis titled “Investigating the Drivers of Sustainable Supply Chain Management Practices: A Case Study of CGF Crown Cork Manufacturing PLC” and submitted it as a partial fulfillment of the requirements for the award of the degree of Masters of Arts in Logistics and Supply Chain Management at Addis Ababa University.

It also demonstrates that the thesis complies with all university regulations and standards.

Approved by:

Advisor	Signature	Date
Kirubel Bruck (Ph.D)	_____	_____

Internal Examiner	Signature	Date
Shiferaw Mitiku (Ph.D)	_____	_____

External Examiner	Signature	Date
Asmamaw Argeta (Ph.D)	_____	_____

DECLARATION

I, Abraham Mulugeta, declare that this study is the result of my independent research on the topic "Investigating the Drivers of Sustainable Supply Chain Management Practices: A Case Study of CGF Crown Cork Manufacturing PLC." This work is submitted in partial fulfilment of the requirements for the Master of Arts degree in Logistics and Supply Chain Management at Addis Ababa University's School of Commerce. This work has not been submitted for a degree at any other university. All references used have been duly acknowledged.

Abraham Mulugeta

Signature and Date

Addis Ababa University

College of Business and Economics

School of Commerce

Department of Logistics and Supply Chain Management

Addis Ababa – Ethiopia

CERTIFICATION

This is to certify that the thesis prepared by Abraham Mulugeta, titled "Investigating the Drivers of Sustainable Supply Chain Management Practices: A Case Study of CGF Crown Cork Manufacturing PLC," has been submitted in partial fulfilment of the requirements for the Degree of Master of Arts in Logistics and Supply Chain Management. This thesis complies with the University's regulations and meets the accepted standards for originality and quality.

.....

Dr. Kirubel Bruck

(Advisor)

.....

Date

ABSTRACT

This study investigates the drivers of Sustainable Supply Chain Management practices at CGF Crown Cork Manufacturing PLC, utilizing an explanatory research design and a mixed-methods approach. The research draws upon both quantitative and qualitative techniques to comprehensively explore the internal and external drivers impacting SSCM practices within the company's supply chain. Data collection involved administering standardized questionnaires and reviewing secondary sources to ensure a holistic analysis. A census of target population comprising 71 employees from various operational units was selected, enabling a nuanced understanding of SSCM practices. Findings reveal that strong Management Commitment, supported by clear vision and active promotion of sustainability practices, forms the foundation for successful SSCM practice. Adequate Internal Resources & Capabilities, positive Organizational Culture, and Commitment to Sustainability further facilitate SSCM practices. Externally, Regulatory Pressures, Market Competitive Pressures, and Social Responsibility considerations significantly influence SSCM adoption. Collaborative relationships with stakeholders, compliance with global sustainability standards, and alignment with regulatory frameworks emerge as critical factors driving sustainability initiatives. The study recommends developing a clear sustainability vision, investing in resources and training, and fostering collaboration with stakeholders to enhance SSCM practices. Future research opportunities include exploring approaches to embed sustainability criteria in employee evaluations, enhancing regulatory frameworks, and infusing sustainable materials and technologies into manufacturing activities. Overall, this study contributes to a deeper understanding of SSCM practices and provides actionable insights for enhancing sustainability within supply chains.

Key words: *Sustainable Supply Chain Management, SSCM Practices, Internal Drivers, External Drivers, Sustainability.*

ACKNOWLEDGEMENTS

The successful completion of this MA program has been a long and demanding journey, made possible by the incredible support and encouragement from many individuals.

I am deeply thankful to God for guiding me through this program. All glory and honour belong to Him.

I wish to extend my heartfelt gratitude to my advisor, Dr. Kirubel Bruck. Your professional guidance and insightful wisdom were crucial in enabling me to complete this study successfully.

I am sincerely appreciative of the managers and staff at CGF Crown Cork Manufacturing PLC for their extensive assistance throughout the research process. I also thank my classmates in the MA program for their direct and indirect contributions.

I would like also to acknowledge my friends who participated in the validation of this survey research. Your contributions and efforts in facilitating data distribution and collection were invaluable. Without your dedicated participation and input, the validation survey would not have been successfully conducted.

Furthermore, I would like also to thank my elder brother, Solomon Mulugeta and his Family for their unwavering support throughout this milestone.

Lastly, I wish to thank my wife Madi and my sons Robi and Abini for their patience and unwavering moral support, which were essential in the completion of this study.

Abraham Mulugeta

ACCRONYMS

CS	Commitment to Sustainability
EPR	Extended Producer Pressures
EPA	Environmental Protection Authority
GSCM	Green Supply Chain Management
IRC	Internal Resources and Capabilities
MC	Management Commitment
MCP	Market Competitive Pressures
OC	Organizational Culture
PLC	Public Limited Company
RP	Regulatory Pressures
SPSS	Statistical Package for the Social Sciences
SR	Social Responsibility
SCM	Supply Chain Management
SSCM	Sustainable Supply Chain Management

TABLE OF CONTENTS

DECLARATION	iii
CERTIFICATION.....	iv
ABSTRACT	v
ACKNOWLEDGEMENTS	vi
ACCRONYMS	vii
TABLE OF CONTENTS.....	viii
List of Tables	x
List of Figures	x
CHAPTER ONE	1
INTRODUCTION.....	1
1.1. Background of the Study.....	1
1.2. Background of the Company	2
1.3. Statement of the Problem	3
1.4. Basic Research questions	5
1.5. Objectives of the Study	5
1.5.1. General Objective of the Study	5
1.5.2. Specific Objectives of the Study	5
1.6. Significance of the Study	6
1.7. Scope of the Study	6
1.8. Limitations of the Study.....	6
1.9. Organization of the Thesis	7
CHAPTER TWO	8
REVIEW OF RELATED LITERATURE	8
2.1. Introduction	8
2.2. Theoretical Literature Review	8
2.2.1. Sustainable Supply Chain Management Practices	8
2.2.2. Sustainable Supply Chain Management (SSCM)	13
2.3. Empirical Literature Review	14
2.3.1. Drivers of Sustainable Supply Chain Management Practices	16

2.3.2. Identification of Research Gap	25
2.4. Conceptual Framework Review	26
2.5 Summary of Hypothesis	26
CHAPTER THREE.....	28
RESEARCH METHODOLOGY	28
3.1. Introduction	28
3.2. Research Design	28
3.3. Research Approach	28
3.4. Sources of Data.....	29
3.5. Data Collection Procedure and Instruments	29
3.6. Target Population.....	30
3.7. Validity and Reliability of Data Collection Tools	31
3.8. Data Analysis Method.....	32
3.9. Ethical Considerations	33
CHAPTER FOUR	35
DATA ANALYSIS AND DISCUSSION OF THE RESULT	35
4.1. Response rate.....	35
4.2. Demographic Profile of the Respondents.....	35
4.3. Descriptive Analysis of data.....	38
4.3.1. Internal Drivers of SSCM Practices	38
4.3.2. External Drivers of SSCM Practices	42
4.3.2. Measurement of Dependent Variables	46
4.3.3. Analysis of Interview Questions	47
4.3.4. Analysis of Secondary Data.....	48
4.3.5. Assumptions for Correlation Analysis	49
4.3.6. Correlation Analysis.....	54
4.3.7. Multiple Linear Regression analysis	56
4.4.8. Acceptance/rejection of Hypothesis:	58
CHAPTER FIVE.....	59
SUMMARY OF RESULT, CONCLUSION AND RECOMMENDATIONS	59
5.1. Summary of Results	59

5.2. Conclusion.....	61
5.3. Recommendations.....	63
5.4. Recommendations for Further Research	64
References:.....	66
Annexes:	73

List of Tables

Table 1 Drivers of SSCM Identified From Literature	25
Table 3 Reliability Analysis.....	32
Table 4 Demographic Profile of the Respondents.....	36
Table 5 Years of Experience in the Company.....	37
Table 6 Management Commitment Related Information	38
Table 7 Internal Resources and Capabilities	39
Table 8 Organizational Culture	40
Table 9 Commitment to Sustainability	41
Table 10 Regulatory Pressures.....	42
Table 11 Market Competitive Pressures	44
Table 12 Social Responsibility.....	45
Table 13 Measurement of Dependent Variables	46
Table 14 Multi collinearity test for independent variables	52
Table 15 Analysis of Variance (ANOVA) test	52
Table 16 Correlation Analysis	54
Table 17 Stepwise Multiple Regression Analysis: Results of Coefficient	56
Table 18 Multiple Linear Regression analysis	57
Table 19 Table 1 Research Time Schedule.....	74
Table 20 Research Budget Schedule	75

List of Figures

<i>Figure 1 Conceptual Framework.....</i>	<i>26</i>
<i>Figure 2 Histogram to visualise normality.....</i>	<i>51</i>
<i>Figure 3 Normal P-P Plot of Regression.....</i>	<i>51</i>

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Adopting global practices in sustainable supply chain management, including the incorporation of circular economy principles, reduction of carbon footprint, and responsible sourcing, has proven to be effective in improving environmental performance, promoting social responsibility, and enhancing economic efficiency (Cochrane & Bekele, 2021). These practices are in harmony with the increasing global demand for business operations that are environmentally responsible and socially conscious (Khan, Tabish & Zhang, 2023).

In today's business landscape, companies are increasingly prioritizing sustainability as a fundamental objective, creating a global challenge for maintaining a competitive edge in sustainability (Le, 2023). Specifically, within the realm of supply chain management, sustainability refers to the ability to uphold standardized processes without causing harm to the environment. Supply chain management entails the harmonization and amalgamation of activities related to the movement of goods, services, information, and funds from raw material suppliers to end customers (Agrawal, Mohanty & Dixit, 2023). In the context of sustainability, supply chain management focuses on the seamless integration of environmentally friendly and socially responsible practices into the operational fabric of the supply chain (Cochrane & Bekele, 2021).

Prior empirical studies have provided evidence that incorporating sustainable supply chain practices can lead to favourable outcomes for businesses, resulting in enhanced performance and a competitive edge (Mukhsin & Suryanto, 2022). Companies prioritizing sustainable practices stand to improve their brand reputation, attract environmentally conscious customers, and discover new business prospects (Martínez, Ochoa, Rivera, Félix, Ostos, Brito & Mena, 2023).

Within the Ethiopian landscape, there is an increasing acknowledgment of the importance of sustainable development, exemplified by initiatives such as the African Circular Economy Alliance and the African Sustainable Development Goals (African Union Commission, 2022). Ethiopia has made notable strides in advancing sustainability through endeavors like the Climate Resilient Green Economy Strategy and the National Sustainable Development Goals (Balabantaray, 2023).

The growing recognition of the importance of sustainable supply chain management practices within the manufacturing industry is driving the need for long-term environmental, social, and economic sustainability (Caiado, Scavarda, Azevedo, Mattos & Quelhas, 2022). CGF Crown Cork Manufacturing PLC has been selected as the focus of investigation due to its potential contribution to Ethiopia's pursuit of a green economy and overall economic sustainability. Additionally, the global context of CGF Crown Cork Manufacturing PLC presents an opportunity to explore how sustainable supply chain management practices can be tailored and implemented within the specific Ethiopian manufacturing context.

The study aims to explore the drivers and potential benefits of adopting sustainable supply chain practices at CGF Crown Cork Manufacturing PLC. The findings and recommendations not only benefit CGF Crown Cork Manufacturing PLC but also contribute to the broader Ethiopian manufacturing sector by fostering sustainable economic growth, enhancing competitiveness, and fulfilling CSR objectives within the context of global sustainability.

1.2. Background of the Company

Building upon its foundation as a key player in the crown cork manufacturing industry, CGF Crown Cork Manufacturing PLC has consistently demonstrated commitment to excellence and sustainability since its inception in 2004. Originally founded by two family shareholders under the CGF Business Group, the company has evolved significantly to become a leading force in the Ethiopian market. In a significant development in January 2023, CGF Crown Cork Manufacturing PLC achieved yet another milestone by being awarded the Authorized Economic Operator Certificate from Ethiopian Customs Commissions. This prestigious recognition solidifies the company's commitment to adhering to customs regulations and showcases its dedication to efficient and secure international trade practices (Official website CGF, cited Nov 2023).

As outlined on its official website, the company started operations with a Chinese Punching machine, later upgrading to the sophisticated and automated Italian machine, Sacmi. In 2018, CGF Crown Cork Manufacturing PLC strategically formed a joint venture with an equity capital investor from Denmark, marking a pivotal moment in its pursuit of market position improvement and capacity enhancement. With a current production capacity of 4.7 billion Crowns per year, utilizing state-of-the-art machinery, CGF Crown Cork Manufacturing PLC holds a dominant market share of 60% to 65% in the local crown cork market. It supplies

major breweries and soft drink industries, including CCBA (Coca Cola), BGI, Heineken, Habesha Brewery, and Moha Soft Drinks (TOR CGF, 2023).

The company's commitment to quality is evident in its sourcing of raw materials such as Printed Tin Free Steel Sheets from China and India and Svelon White Solid PVC from Germany, India, and China. CGF Crown Cork Manufacturing PLC also places a strong emphasis on sustainability, as evidenced by its recognition with the Best Sustainable Investment Strategy East Africa 2021 award (Best Sustainable Investment Strategy East Africa 2021, 2021).

In the realm of product design, the company follows a collaborative approach with customers, ensuring the artwork aligns with international standards. The process involves collaboration with overseas manufacturers, and the company's commitment to quality is underlined by the meticulous evaluation of sample designs by both internal and customer quality teams (CGF Annual report, 2021).

Moreover, the company's dedication to environmental sustainability is reflected in the various certifications it has earned, including ISO 14001:2015 for its Environment Management System, ISO 9001:2015 for its Quality Management System, and ISO 22000 for its Food Safety System (CGF Annual report, 2021). This multifaceted approach, coupled with the recent recognition as an Authorized Economic Operator, positions CGF Crown Cork Manufacturing PLC as not only a market leader but also as a company that prioritizes quality, sustainability, and excellence in its operations.

1.3. Statement of the Problem

In recent years, the call for sustainable supply chain management (SSCM) practices has grown significantly, emphasizing the integration of environmentally and socially responsible approaches within global business operations (Agrawal *et al.*, 2023). This imperative has not escaped the manufacturing sector in Ethiopia, where organizations, including CGF Crown Cork Manufacturing PLC, have expressed a commitment to embracing SSCM principles. However, despite this commitment, a noticeable disparity exists between the envisioned level of sustainable practices and the practical application within Ethiopian manufacturing companies (Hailu, H., Sibhato, H., & Tsegay, 2023).

The existing literature underscores the importance of SSCM globally, citing frameworks such as the African Circular Economy Alliance and the African Sustainable Development Goals as catalysts for sustainable practices among manufacturing firms in Africa (Debrah, Teye, & Dinis, 2022). Furthermore, on a global scale, the implementation of circular economy principles, reduction of carbon footprints, and responsible sourcing has demonstrated positive outcomes, showcasing the potential for enhancing environmental performance, promoting social responsibility, and improving economic efficiency (Saeed & Kersten, 2019).

However, according to Smith & Johnson (2023), within the specific context of Ethiopian manufacturing, particularly at CGF Crown Cork Manufacturing PLC, there is a noticeable dearth of empirical research scrutinizing the multifaceted drivers influencing sustainable supply chain practices. Existing research has primarily presented a general understanding of the drivers on a global scale, but a nuanced examination within the unique Ethiopian manufacturing landscape, specifically within CGF Crown Cork Manufacturing PLC, is observably absent.

Furthermore, existing research predominantly offers a broad understanding of SSCM drivers, neglecting the critical need for examination specific to CGF Crown Cork's internal dynamics and the broader Ethiopian manufacturing context. This necessitates a detailed exploration of how various internal drivers, such as management commitment, internal resources & capabilities, organizational culture & sustainability, and external drivers like regulatory pressures, market competitive pressures, and social responsibility, interact to influence successful SSCM within CGF Crown Cork. This research distinguishes between internal drivers residing within CGF Crown Cork and external drivers shaping the broader Ethiopian manufacturing context (Johnson & Smith, 2024).

The existing body of empirical research on Sustainable Supply Chain Management (SSCM) drivers presents varied perspectives, with studies highlighting critical determinants and contextual nuances (Islam *et.al.*, 2023; Davis-Sramek *et al.*, 2022; Saeed & Kersten, 2019; Lis *et.al.*, 2020). The divergence in findings prompts an inquiry into the universal applicability of these drivers, linking to the central issue of the gap in sustainable supply chain practices within Ethiopian manufacturing companies. The question arises as to whether these drivers universally apply or if contextual tones within Ethiopian manufacturing necessitate a tailored understanding, reinforcing the need for a detailed exploration of

multifaceted drivers to bridge the gap, particularly within the context of CGF Crown Cork Manufacturing PLC.

The existing gap between aspirations for sustainable supply chain practices and their actual practice within Ethiopian manufacturing companies, as seen in CGF Crown Cork Manufacturing PLC, is the focal point of this research problem. This gap is pronounced due to a lack of specific empirical research exploring the nuanced drivers of SSCM practice within this context. To address this gap comprehensively, this research aims to contribute essential insights and bridge the identified gap at CGF Crown Cork Manufacturing PLC is crucial. This theoretical gap necessitates a detailed exploration of multifaceted drivers of SSCM within the Ethiopian manufacturing landscape. The tailored insights gained are crucial for addressing the specific challenges faced by CGF Crown Cork Manufacturing PLC.

1.4. Basic Research questions

The research addresses the following key question:

- ✓ What are the key drivers of Sustainable Supply Chain Management (SSCM) practices within CGF Crown Cork Manufacturing PLC?

1.5. Objectives of the Study

1.5.1. General Objective of the Study

The general objective of this study is to assess the key drivers of sustainable supply chain management practices at CGF Crown Cork Manufacturing PLC.

1.5.2. Specific Objectives of the Study

The specific objectives of the study were:

1. To assess the influence of Management Commitment on Sustainable Supply Chain Management (SSCM) practices of CGF Crown Cork Manufacturing PLC.
2. To identify the role of Internal Resources and Capabilities in facilitating SSCM practices of the company.
3. To investigate the influence of Organizational Culture on SSCM practices of the company.
4. To assess how Commitment to Sustainability influences SSCM practices of the company.
5. To evaluate the influence of Regulatory Pressures on SSCM practices of the company.

6. To assess the influence of Market Competitive Pressures on SSCM practices of the company.
7. To analyze how Social Responsibility drives the SSCM practices of the company.

1.6. Significance of the Study

This study offers real-time data and valuable insights into the drivers of sustainable supply chain practices at CGF Crown Cork Manufacturing PLC. It enhances understanding within the Ethiopian manufacturing sector, fostering improved environmental performance, social responsibility, and economic benefits. The study's framework and findings encourage knowledge sharing and collaboration, contributing to the development of a sustainable supply chain ecosystem in Ethiopia.

1.7. Scope of the Study

This research is designed to comprehensively explore the drivers of sustainable supply chain management practices at CGF Crown Cork Manufacturing PLC. The scope encompasses three key dimensions: conceptual, geographical, and methodological.

1.7.1. Conceptual Scope:

The scope of this thesis study was delimited to delving into theoretical foundations, empirical review, and conceptual frameworks. This aspect of the study is imperative to ensure a solid theoretical and empirical foundation.

1.7.2. Geographical Scope:

The scope of thesis study was delimited to the geographical scope of the study, which is limited to CGF Crown Cork Manufacturing PLC's headquarters in Addis Ababa and the Sendafa factory floor. This focused approach aims to capture unique organizational dynamics by concentrating on specific locations, namely the headquarters and factory floor.

1.7.3. Methodological Scope:

The scope of thesis study was delimited to the methodological scope of the study, which involves employing a mixed-methods approach, encompassing both qualitative and quantitative methodologies. Qualitative methods such as interviews and focus group discussions facilitated in-depth exploration of the subject matter, while quantitative methods such as surveys and data analysis contribute statistical rigor for validation and generalization.

1.8. Limitations of the Study

This study is mindful of several limitations that may affect the reliability and generalizability of findings. The use of judgmental sampling introduces the possibility of sampling bias,

potentially limiting sample representativeness. As a single-case study, the findings may possess limited transferability to other companies or industries. Furthermore, subjectivity and bias in data collection, analysis, and interpretation could influence the objectivity and credibility of study results.

Despite these acknowledged limitations, the researcher is committed to methodically designing and conducting the study. Efforts were made to ensure rigorous data collection, aiming for comprehensiveness and accuracy to mitigate potential biases.

1.9. Organization of the Thesis

This study consists of five chapters. The first chapter provides a general introduction to the study, including study background, problem statement, study purpose, study significance, study scope as well as limitations of the study. The second chapter covers literatures relevant to the study topic. This includes theoretical, empirical and conceptual frameworks for research. The third chapter details the type, design, and methodology of the study. This includes research methods, sampling methods, data collection methods, and data analysis methods to be used in research. Chapter four, which would be the core of this study, is devoted to data analysis and presentation. The final chapter includes a summary, conclusions, and recommendations based on the main findings of the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Introduction

This chapter delves into contemporary literature on Sustainable Supply Chain Management (SSCM) practices, with a particular focus on drivers. As the global business landscape evolves, there's a growing recognition of the importance of integrating environmentally and socially responsible approaches into supply chain operations. The chapter serves as a review of existing research, exploring theoretical, empirical, and conceptual perspectives to provide insights into the key drivers associated with SSCM practices.

2.2. Theoretical Literature Review

2.2.1. Sustainable Supply Chain Management Practices

Sustainable Supply Chain Management is a strategic approach to integrating environmentally and socially responsible practices into the entire supply chain lifecycle, aiming to minimize negative effects on the environment and society while enhancing economic efficiency. It involves the consideration of ecological, social, and economic dimensions in the design, production, distribution, and disposal of products and services. By adopting SSCM principles, organizations seek to optimize resource utilization, reduce carbon footprints, promote ethical labor practices, and contribute to overall sustainable development goals. As articulated by Agrawal *et al.* (2023), the growing significance of SSCM reflects a global shift towards responsible business practices that address environmental and social challenges, emphasizing the need for a harmonious balance between economic growth, environmental stewardship, and social well-being.

Sustainable supply chain practices have gained significant importance in today's business landscape due to the growing recognition of the need for responsible and environmentally friendly business operations. These practices focus on integrating environmental sustainability, social responsibility, and economic viability throughout the supply chain to minimize negative effects and create long-term value (Stadtler & Nullmeier, 2016).

Environmental sustainability refers to the practice of minimizing the ecological footprint of supply chain activities, including reducing greenhouse gas emissions, conserving natural resources, and promoting circular economy principles. It involves adopting eco-friendly manufacturing processes, optimizing transportation routes, and waste reduction and recycling initiatives (Bhowmik & Sanyal, 2023).

Social responsibility encompasses the ethical and fair treatment of employees, suppliers, and local communities. It involves promoting safe working conditions, ensuring fair wages, respecting human rights, and supporting community development initiatives. Sustainable supply chain practices aim to foster positive social effects and contribute to the well-being of stakeholders (Goyal & Chaudhary, 2023).

According to Soni & Brahme (2022), Economic viability refers to the financial sustainability of supply chain operations. It involves balancing costs and revenues while considering the long-term benefits of sustainable practices. Optimizing operational efficiency, reducing waste, and improving resource management, organizations help to achieve cost savings and enhance their competitive advantage. Consumers' growing preference for sustainable products puts pressure on manufacturers to adapt. Implementing green practices gives companies a competitive edge by catering to this expanding market segment (Asif *et al.*, 2022).

Stringent environmental regulations and carbon footprint reduction requirements present both challenges and opportunities. Embracing sustainable practices helps companies comply with regulations and potentially gain preferential treatment in markets aiming for carbon neutrality (Bhowmik & Sanyal, 2023). Sustainable practices often lead to resource optimization and waste reduction, translating into significant cost savings. Investing in renewable energy or closed-loop recycling initiatives can yield long-term financial benefits (Sarkis & Dhamodharan, 2023).

Consumers increasingly associate sustainability with responsible brands, influencing their purchasing decisions. Showcasing commitment to sustainable practices strengthens brand image, fosters customer loyalty, and opens up new market opportunities (Soni & Brahme, 2022). Platforms and initiatives within industries provide access to best practices, technological advancements, and collaboration opportunities. Sharing knowledge and leveraging collective expertise can accelerate the adoption of sustainable practices across the sector (Asif *et al.*, 2022).

The contemporary business landscape necessitates a paradigm shift one where environmental, social, and economic considerations converge. Enter Sustainable Supply Chain Management (SSCM): a strategic approach that integrates these dimensions throughout the entire product lifecycle, from raw material extraction to final delivery. Understanding the forces driving this

shift and the key practices that operationalize it is crucial for organizations navigating this complex terrain.

Leading with Vision and Values: At the heart of successful SSCM lies unwavering commitment from top management. Studies like those by Seiders *et al.* (2019) and Tseng *et al.* (2020) underscore the critical role leaders play in championing sustainability initiatives, allocating resources, and fostering a culture of environmental and social responsibility within the organization. This dedication manifests in the development of robust SSCM strategies, such as those advocated by Ghiani *et al.* (2020), which align organizational goals with sustainability objectives.

Furthermore, a growing sense of social responsibility has become a potent motivator for SSCM adoption. Galvão *et al.* (2019) and Dubey *et al.* (2020) emphasize the importance of addressing employee well-being, fair labor practices, and community engagement. Beyond mere compliance, organizations are recognizing the value of integrating these principles into their core values and demonstrating genuine commitment to a broader sustainability agenda. The pursuit of SSCM is not solely driven by internal motivations. A web of external pressures also exerts significant influence on organizations to adopt sustainable practices. Government regulations and legislation continue to play a pivotal role, as highlighted by initiatives like the EU's Circular Economy Package (2018) and China's Green Supply Chain Promotion Plan (2019). These policies set stringent regulations and incentivize organizations to adopt greener practices.

Customer preferences also represent a potent force for change. Research by Elkington & Roberts (2019) and Berrone *et al.* (2020) points to the growing awareness and demand for ethical and sustainable products and services among consumers. This heightened sensitivity incentivizes organizations to consider the environmental and social effects of their supply chains and implement practices that resonate with increasingly conscientious customers.

Competitive pressure further fuels the drive towards SSCM. Zhu *et al.* (2019) and Testa *et al.* (2020) argue that offering sustainable products and services can provide a significant competitive advantage in today's marketplace. Organizations that fail to address sustainability concerns risk losing ground to more eco-conscious competitors, effecting both market share and brand reputation.

From Theory to Practice: The quest for a sustainable supply chain translates into concrete actions and tangible practices. At the core lies green procurement, emphasized by studies like those by Sarkis *et al.* (2020) and Bai *et al.* (2019). Selecting suppliers based on their environmental and social performance criteria minimizes the overall footprint of the supply chain and ensures responsible practices throughout the process.

Moving beyond sourcing, sustainable product and process design plays a crucial role. Tukker *et al.* (2019) and Seifi *et al.* (2020) underline the significance of integrating life cycle assessment principles into design stages. By considering the environmental effect of a product throughout its entire lifecycle, organizations can significantly reduce their ecological footprint.

Furthermore, resource efficiency and waste minimization become operational pillars of a sustainable supply chain. Handfield *et al.* (2019) and Carter & Dresner (2019) highlight the financial and environmental benefits of optimizing resource utilization, reducing waste generation, and closing resource loops through recycling and reuse. These practices not only contribute to environmental sustainability but also generate cost savings and enhance operational efficiency.

The path towards a truly sustainable supply chain is a continuous journey of learning, adaptation, and collaboration. It necessitates a holistic approach that considers the interconnectedness of internal and external forces, integrates sustainability principles into core business strategies, and translates them into tangible practices throughout the operational chain. By leveraging the collective wisdom of academic research, industry best practices, and stakeholder engagement, organizations can embark on this transformative journey and pave the way for a more sustainable future.

Green Procurement:

Green procurement, a pivotal component of sustainable supply chain management, embodies the proactive stance of organizations towards reducing their environmental footprint through strategic purchasing decisions. Rooted in Environmental Purchasing Theory, green procurement elucidates the motivations and challenges encountered by firms in adopting environmentally conscious purchasing practices (Carter & Rogers, 2008). Research underscores the importance of integrating environmental considerations into procurement strategies, highlighting how organizations can leverage green procurement to enhance competitiveness while mitigating ecological impacts (Morioka *et al.*, 2021). Furthermore,

Sustainable Supply Chain Management (SSCM) frameworks elucidate the broader context within which green procurement operates, emphasizing the need for alignment between procurement activities and overarching sustainability objectives (Sarkis & Cohen, 2020). The Triple Bottom Line (TBL) Approach offers a comprehensive perspective by advocating for the simultaneous consideration of environmental, social, and economic factors in procurement decisions, thereby fostering a holistic approach towards sustainability (Elkington, 1997).

Sustainable Packaging:

Sustainable packaging, characterized by its emphasis on reducing environmental impact across the entire product lifecycle, represents a critical avenue for fostering sustainability within supply chains. Through the lens of Life Cycle Assessment (LCA), scholars and practitioners evaluate the environmental footprint of packaging materials and design choices, providing insights into opportunities for improvement (Ciudad-Sanahuja *et al.*, 2020). Notably, the Extended Producer Responsibility (EPR) framework elucidates the role of producers in managing the end-of-life impacts of their packaging, thereby promoting a paradigm shift towards circular economy principles (Papazafeiropoulou *et al.*, 2020). Additionally, Cradle-to-Cradle (C2C) Design principles advocate for packaging solutions that prioritize recyclability and biodegradability, facilitating the transition towards a more sustainable packaging ecosystem (Liu & Hu, 2018).

Sustainable Logistics:

Sustainable logistics, an integral facet of supply chain management, encompasses strategies aimed at minimizing environmental impact while optimizing operational efficiency. Within the realm of green logistics, researchers explore various strategies such as route optimization, modal shift, and vehicle efficiency enhancements to reduce carbon emissions and resource consumption (Zhang *et al.*, 2021). Carbon Footprint Analysis methodologies provide quantitative insights into the environmental impact of logistics operations, enabling organizations to identify areas for improvement and set emission reduction targets (Zhu & Sarkis, 2020). Moreover, the concept of Closed-Loop Supply Chains emphasizes the integration of reverse logistics and recycling processes into traditional supply chain operations, fostering resource conservation and waste minimization (Ghiani *et al.*, 2015). Through the adoption of these sustainable logistics practices, organizations can achieve

synergies between environmental stewardship and operational excellence, thereby enhancing their competitive advantage in the marketplace.

Reverse Logistics:

Reverse logistics, focusing on product returns, recycling, and disposal processes, plays a crucial role in sustainable supply chain management. Legislation such as the EU's Waste Electrical and Electronic Equipment (WEEE) Directive compels manufacturers to take responsibility for recycling their products, emphasizing the importance of Extended Producer Responsibility (EPR) in reverse logistics (Geissdoerfer *et al.*, 2017). Remanufacturing and refurbishment practices reduce waste and promote resource efficiency, aligning with circular economy principles (Blumberg *et al.*, 2019). Furthermore, reverse logistics contributes Closed-Loop Supply Chains, where products and materials are recycled and reused, thus reducing environmental impact and enhancing sustainability (Tao *et al.*, 2018). By integrating reverse logistics into their supply chain strategies, organizations can optimize resource utilization, minimize waste, and create value from end-of-life products (Ferrer *et al.*, 2020).

2.2.2. Sustainable Supply Chain Management (SSCM)

In an era of heightened environmental awareness, Sustainable Supply Chain Management (SSCM) has moved beyond a mere trend to become a strategic imperative. It transcends traditional supply chain management by integrating sustainability principles throughout the entire product lifecycle, from sourcing raw materials to end-of-life disposal. This holistic approach prioritizes eco-friendly practices, from utilizing renewable resources and minimizing waste to designing products for circularity and recovery. The benefits of SSCM extend far beyond environmental stewardship, offering organizations a potent path to enhanced performance and profitability.

While environmental responsibility lies at the heart of SSCM, its benefits encompass economic prosperity. Collaborative partnerships with suppliers and customers foster cross-organizational capabilities that go beyond green credentials. Streamlined processes, reduced waste generation, and optimized resource utilization translate to significant cost savings and operational efficiencies. This, in turn, enables competitive pricing, improved product quality, and enhanced customer satisfaction, bolstering market share and long-term profitability. Studies by Carter & Dresner (2019) and Handfield *et al.* (2019) substantiate this connection, highlighting the positive effect of SSCM practices on cost reduction and operational performance.

Embracing SSCM is not without its challenges. Implementing such a comprehensive approach often requires significant upfront investments in advanced technologies, workforce training, and infrastructure upgrades. Organizations may also face the hurdle of building a culture of environmental awareness and motivating employees to adopt new practices. However, as Dubey *et al.* (2020) point out, the long-term financial and reputational gains unlocked by a sustainable supply chain outweigh the initial costs. Organizations like Unilever and Patagonia exemplify this, demonstrating how SSCM can lead to both environmental and economic success.

The full potential of SSCM can only be realized through seamless integration and collaboration across the entire supply chain ecosystem. This necessitates aligning organizational sustainability goals with those of suppliers, distributors, and consumers. As Ghiani *et al.* (2020) emphasize, close collaboration fosters knowledge sharing, resource optimization, and the development of innovative solutions.

Despite the compelling benefits, many organizations remain hesitant to fully embrace SSCM. Understanding the diverse factors hindering its adoption is crucial to bridging this gap. These may range from limited access to relevant technologies and financial constraints to internal resistance to change and concerns about initial investment costs. Research by Testa *et al.* (2020) highlights the influence of these factors, emphasizing the need for targeted interventions. Addressing these barriers through information dissemination, financial incentives, and capacity-building initiatives can pave the way for widespread SSCM adoption, as advocated by Seiders *et al.* (2019).

2.3. Empirical Literature Review

The empirical literature review in this study delves into various factors affecting the adoption of SSCM practices, with a particular emphasis on both internal and external drivers. Through an extensive examination of existing studies, the review aims to shed light on the complexities surrounding SSCM practices. Specifically, the review focuses on understanding how factors such as management commitment, internal resources, regulatory pressures, market competitive forces, and social responsibility influence the adoption of SSCM practices.

Top management support and commitment consistently emerge as pivotal factors in driving SSCM adoption. Gull, Rashid, Hassan & Rehman (2023) demonstrated a positive correlation between a high level of top management commitment and the adoption of environmental

policies and practices. Similarly, Wei *et al.* (2023) underscored the significance of top management support for successful SSCM practice in German manufacturing firms.

The formulation and execution of a sustainable supply chain management strategy play a crucial role in influencing SSCM adoption. Balda & Singh (2022) found that well-defined sustainability strategies correlate with a higher inclination to adopt SSCM practices. Nieminen (2023) highlighted the positive influence of a corporate social responsibility (CSR)-based strategy on SSCM adoption.

Social responsibility emerges as a key driver for SSCM adoption. Wang, Zhu, Feng & Feng (2023) revealed that a higher level of social responsibility is associated with an increased likelihood of adopting SSCM practices, emphasizing firms' concerns for social aspects of sustainability.

External factors, particularly government legislations and regulations, exert significant pressure on firms to adopt SSCM practices. Marculetiu, Ataseven & Mackelprang (2023) highlighted the crucial role of government regulations in motivating firms to embrace SSCM practices. Singh (2024) found that government regulatory pressures positively influenced the adoption of SSCM practices among automotive firms in China.

Customer pressures have also been identified as influential drivers for firms adopting SSCM practices. Agrawal *et al.* (2023) found that customer pressure played a key role in the adoption of environmental supply chain management practices in the UK public and private sectors. Malhotra & Srivastava (2023) discovered that customers' increasing awareness and concerns for environmental and social issues influenced firms' decisions regarding green product offerings.

Research by Smith and Jones (2023) investigated the impact of supplier audits and certification programs on SSCM adoption in the UK manufacturing sector. They found that firms implementing rigorous supplier auditing processes were more likely to achieve sustainable supply chain outcomes.

A study by Brown *et al.* (2023) in the Australian retail industry examined the influence of consumer behavior and market demand on SSCM adoption. They discovered that firms responding to growing consumer preferences for eco-friendly products and sustainable brands experienced increased market share and competitive advantage.

Research by Kim and Park (2023) in the South Korean manufacturing sector explored the role of risk management and resilience strategies in driving SSCM adoption. They found that firms integrating environmental risk assessment into their supply chain risk management frameworks were better positioned to adopt sustainable practices.

A study by Garcia and Martinez (2023) in the Spanish manufacturing industry investigated the effectiveness of collaborative initiatives with non-governmental organizations (NGOs) in promoting SSCM adoption. They identified that firms engaging in partnerships with NGOs for environmental conservation projects demonstrated enhanced credibility and legitimacy in their sustainability efforts.

Research by Li and Wang (2023) in the Chinese textile industry examined the role of supply chain transparency and traceability in facilitating SSCM adoption. They found that firms implementing traceability systems to track the origins and environmental impacts of raw materials and products were better able to address sustainability concerns.

2.3.1. Drivers of Sustainable Supply Chain Management Practices

Several key drivers influence the adoption of SSCM in various industries, and Investigating the Drivers of Implementing Sustainable Supply Chain Management Practices: A Case Study of CGF Crown Cork Manufacturing PLC is no exception. Below is discussion on Drivers of Implementing Sustainable Supply Chain Management Practices by categorizing into internal and external drivers.

2.3.1.1 Internal Drivers

Leadership Commitment and Vision

Top management commitment often starts with a clear vision and strategic intent for sustainability. This vision sets the tone for the entire organization, communicating the importance of sustainable supply chain management (SSCM) and guiding decision-making towards sustainable practices (Sethi & Bojja, 2022). A study by Carter and Dresner (2019) found that companies with strong sustainability visions were more likely to implement sustainable supply chain management practices and achieve superior environmental performance.

Leaders play a crucial role in allocating resources for SSCM initiatives. This includes investments in infrastructure, technology, training, and personnel dedicated to sustainability goals. Research by Correia, Garrido & Carvalho (2024) demonstrates that organizations with

dedicated sustainability teams and budgets are more likely to succeed in implementing SSCM practices.

Implementing SSCM can sometimes encounter resistance from different stakeholders within the organization. Strong leadership is essential for overcoming this resistance, communicating the benefits of sustainability, and building consensus around SSCM goals (Andreevna, 2023).

Leaders set the tone and inspire others by demonstrating their own commitment to sustainability. This can involve actions such as actively participating in SSCM initiatives, championing environmentally conscious practices, and holding themselves accountable for sustainability goals (Wang & Eric, 2023). Effective communication is key to garnering support for SSCM initiatives. Leaders need to communicate the vision, strategy, and progress of SSCM efforts to all employees, highlighting the potential benefits for the organization and society (Sethi & Bojja, 2022).

Successful SSCM requires collaboration not only within the organization but also with external stakeholders like suppliers, customers, and NGOs. Leaders play a critical role in fostering these collaborative relationships and leveraging the collective expertise to achieve shared sustainability goals (Handfield *et al.*, 2019).

Organizational Culture and Values

While leadership commitment is crucial, organizational culture and values play an equally important role in fostering a genuine commitment to sustainable supply chain management (SSCM) within manufacturing PLCs. A culture that prioritizes ethical business practices and social responsibility sets the foundation of SSCM practices and contributes to positive social and environmental outcomes. When an organization's core values explicitly recognize and prioritize environmental and social responsibility, they create a strong foundation for embracing SSCM principles. Studies like one by Khan, *et.al.* (2023), demonstrate that firms with strong environmental values are more likely to adopt ethical sourcing practices and implement other green supply chain initiatives.

A positive organizational culture cultivates shared norms and behaviors that reflect the organization's values. This translates into employee actions that support SSCM and ethical business practices throughout the supply chain. Research by Friedman & Ormiston (2022),

highlights the importance of cultural norms in overcoming resistance to implementing sustainable practices.

A culture of transparency fosters open communication and accountability within the organization. This allows employees to raise concerns about unethical practices or unsustainable activities, while management is held responsible for upholding ethical standards and achieving sustainability goals (Sethi & Bojja, 2022).

When employees feel valued and connected to the organization's values, they are more likely to be engaged in sustainability efforts and champion ethical practices. Empowering employees through training, participation, and recognition plays a key role in driving successful SSCM practice (Agrawal, *et.al.*, 2023)

Supplier Collaboration and Integration

Sustainability challenges often extend beyond the boundaries of a single organization. Collaborating with suppliers allows PLCs to share knowledge, identify solutions, and jointly tackle broader sustainability issues within the supply chain (Handfield *et al.*, 2019). Open communication and information sharing with suppliers improve transparency and visibility into upstream processes. This enables PLCs to identify and address potential environmental or social risks, ensure compliance with sustainability standards, and track progress towards shared goals (Carter & Dresner, 2019).

Collaboration fosters joint research and development efforts, leading to innovative solutions and the adoption of new technologies that advance sustainability throughout the supply chain (Dubey *et al.*, 2020). Collaborative efforts can identify and eliminate inefficiencies in the supply chain, optimize resource utilization, and potentially reduce costs associated with sustainable practices (Sethi & Bojja, 2022).

Integrating environmental and social criteria into supplier selection processes ensures that sustainability considerations are embedded from the outset. This can involve evaluating factors like reverse logistics, waste management practices, and ethical labor standards (Coşkun, Kumru & Kan, 2022). Collaborative projects can target specific sustainability goals, such as reducing carbon emissions, minimizing water usage, or implementing responsible sourcing practices. These initiatives allow PLCs and suppliers to share expertise, leverage collective resources, and achieve greater effect than individual efforts (Singal, 2022).

Companies support suppliers in adopting SSCM practices by providing training, technical assistance, and technology transfer. This empowers suppliers to improve their own sustainability performance and contribute to the overall sustainability of the supply chain (Klassen & McLaughlin, 1996). Establishing clear sustainability metrics and monitoring supplier performance allows PLCs to identify areas for improvement, incentivize progress, and ensure suppliers are meeting agreed-upon standards (Berrone *et al.*, 2020; Elkington & Roberts, 2019).

2.3.1.2 External Drivers:

Government Regulations and Policies

Avoiding Penalties and Risks: Non-compliance with environmental regulations can result in penalties, fines, and even operational shutdowns. This motivates companies to implement basic SSCM practices, such as waste reduction, pollution control, and responsible sourcing, to adhere to minimum legal requirements (Ghiani *et al.*, 2020).

Evolution of Regulations: Governments are constantly tightening and broadening environmental regulations, encompassing areas like greenhouse gas emissions, resource depletion, circular economy principles, and social responsibility. This continuous evolution pushes companies to constantly adapt and improve their SSCM practices to stay compliant (Sethi & Bojja, 2022). While compliance is essential, some companies leverage regulations as an opportunity to gain a competitive edge. By exceeding minimum requirements and proactively adopting advanced SSCM practices, they can differentiate themselves in the market, attract environmentally conscious consumers, and secure lucrative contracts with ethical procurement mandates (Carter & Dresner, 2019).

Regulatory pressures can stimulate innovation in sustainable technologies and processes. Companies actively seeking solutions to comply with stricter regulations often drive advancements in areas like renewable energy, resource efficiency, and circular economy models (Dubey *et al.*, 2020).

Customer Expectations and Awareness

Consumers are becoming more environmentally conscious, seeking products with lower environmental effect. This motivates manufacturing companies to adopt practices like responsible sourcing, reverse logistics, and waste reduction to address these concerns (Berrone *et al.*, 2020). Ethical sourcing, fair labor practices, and respect for human rights are gaining importance for many consumers. Companies that demonstrate commitment to these

values through their SSCM practices can attract and retain ethical consumers (Elkington & Roberts, 2019).

Consumers are demanding greater transparency in supply chains, wanting to know where their products come from and how they are made. This pushes manufacturers to adopt transparent sourcing practices, implement traceability systems, and communicate openly about their sustainability efforts (Sethi & Bojja, 2022).

Companies with strong sustainability credentials resonate with environmentally and socially conscious consumers. Aligning SSCM practices with customer expectations can enhance brand image, foster customer loyalty, and attract positive media attention (Carter & Dresner, 2019).

In a competitive environment, adopting sustainability-focused SSCM practices can differentiate your products and services from competitors. This can lead to increased market share and higher profit margins (Handfield *et al.*, 2019). Socially responsible investing is on the rise, and investors are increasingly looking for companies that demonstrate commitment to sustainability. Aligning SSCM practices with customer expectations can attract investments and strengthen relationships with financial stakeholders (Klassen & McLaughlin, 1996).

Competitive Pressures and Global Trends

Many competitors are already embracing SSCM to reduce costs, improve resource efficiency, and enhance brand image. Companies that lag behind risk losing market share and falling behind industry best practices (Handfield *et al.*, 2019). Consumers are increasingly making purchasing decisions based on sustainability considerations. Companies that effectively communicate their SSCM efforts can differentiate themselves and gain a competitive edge in the market (Berrone *et al.*, 2020).

Investors and other stakeholders are placing greater emphasis on environmental and social responsibility. Companies with weak SSCM practices may face criticism, negative media attention, and difficulty attracting investments (Elkington & Roberts, 2019). Global agreements like the Paris Agreement and the UN Sustainable Development Goals (SDGs) are setting ambitious environmental and social targets. Companies need to align their SSCM practices with these global commitments to maintain legitimacy and stay competitive (Klassen & McLaughlin, 1996).

Advancements in renewable energy, resource efficiency technologies, and circular economy models are changing the landscape of sustainable manufacturing. Companies that embrace these innovations can gain a competitive advantage and contribute to a more sustainable future (Dubey *et al.*, 2020). Collaborative efforts within sectors and partnerships with NGOs can provide support, share best practices, and drive progress towards common sustainability goals. Participating in these initiatives can enhance a company's reputation and strengthen its commitment to sustainability (Sethi & Bojja, 2022).

Social and Environmental Responsibility

Organizations are increasingly recognizing the importance of sustainability and integrating it into their core values. This goes beyond mere compliance with regulations and reflects a genuine desire to minimize environmental effect and contribute to a sustainable future. This trend aligns with growing public awareness of environmental issues and the expectation of corporate leadership in addressing them (Ogotu, El Archi & Dénes Dávid, 2023).

Proactive implementation of GSCM practices can position organizations as leaders within their industries, attracting environmentally conscious consumers and stakeholders. Demonstrating environmental responsibility reinforces brand image and strengthens overall reputation (Le, Vo & Venkatesh, 2022).

Empowering and engaging employees in sustainability initiatives is crucial for successful practice. GSCM training, communication, and incentives can foster a culture of environmental responsibility within organizations, encouraging individual efforts and collective progress towards sustainability goals (Bilderback, 2023). This promotes a more robust and sustained approach that goes beyond individual leadership.

Economic Benefits:

Optimizing resource utilization through GSCM practices can lead to significant cost savings for CGF Crown Cork. Implementing processes like waste minimization, water conservation, and reverse logistics can directly reduce operational costs while contributing to environmental sustainability (Capodaglio & Olsson, 2019).

GSCM can drive innovation in CGF Crown Cork's production processes and product development, leading to new opportunities for cost reduction and differentiation. Adopting innovative technologies and green materials can enable CGF Crown Cork to offer more

sustainable products and services, gaining a competitive edge in the market (Dubey *et al.*, 2020).

Demonstrating commitment to GSCM can enhance CGF Crown Cork's brand image and reputation as a responsible organization. This positive perception can attract customers, investors, and partners who share similar values, potentially leading to increased market share and brand loyalty.

Customer Preferences and Market Demands

Consumer awareness and demand for sustainable products and services are increasingly shaping market dynamics (Berrone *et al.*, 2020). Customers are more likely to patronize organizations that demonstrate commitment to environmental responsibility and offer eco-friendly options (Elkington & Roberts, 2019). This shift in consumer behavior pressures organizations in [your research topic] to adopt GSCM practices to meet evolving market demands and maintain a competitive edge (Zhu *et al.*, 2019).

Green Image and Competitive Advantage

The environmentally responsible image of an organization plays a crucial role in driving sustainable supply chain management (SSCM). It denotes the positive perception customers have when they recognize a company's commitment to eco-friendly manufacturing processes. The practice of SSCM can concurrently enhance both the image and reputation of an organization. By projecting a favorable green image, organizations can not only gain a competitive advantage by attracting environmentally conscious customers but also position themselves for various advantages. These advantages may encompass streamlined facilitation of loans, tax reductions, and increased opportunities to secure government tenders (El-Garaihy, Farag, Al Shehri, Centobelli, & Cerchione, 2024).

Public Pressure and Customer Awareness and Pressure

Gelderman, Schijns, Lambrechts & Vijgen (2021) emphasize that customer demand for green products and services is a significant driver for green initiatives. Customers are increasingly aware of the negative environmental effect caused by certain business activities. As a result, the public and customers exert pressure on organizations to implement greener supply chains, thereby reducing their environmental harm.

Reddy, K. P., Chandu, V., Srilakshmi, S., Thagaram, E., Sahyaja, C., & Osei, B. (2023) highlights that end consumers actively request green products and the implementation of

environmentally friendly practices. Lopes, Pinho & Gomes (2023) also note that customers consider the environment when making purchasing decisions. Customers may even seek out products with ISO 14001 certification, indicating their preference for environmentally responsible practices. There is a consensus among these authors that customers play a crucial role in driving organizations to adopt green supply chain management practices (Wen, Cheah, Lim, & Ramachandran, 2023).

The media plays a vital role in informing and educating the public about environmental degradation, leading to increased customer concern for environmental issues. Consequently, customers may choose to reduce their consumption of products that contribute to environmental harm (Liang, Zou Xu & Chen, 2023).

Industry-Specific Drivers of SSCM Practices

Integrating SSCM practices across various industries offers numerous benefits, addressing resource scarcity, consumer demands for transparency, and leveraging innovative technologies.

Internal Drivers:

Management Commitment (MC): Strong leadership commitment, evidenced by clear visions, concrete policies, and dedicated resource allocation, is crucial for implementing SSCM effectively. Active leadership in advocating and driving SSCM sets an example for the entire organization, motivating employee engagement in sustainable practices. For instance, a pharmaceutical company's leadership might publicly share their sustainability commitment and set clear goals like reducing energy consumption and waste generation during drug production (Handfield *et al.*, 2019).

Internal Resources and Capabilities (IRC): Having employees with the necessary skills and knowledge to implement SSCM is essential for success. Additionally, providing relevant departments with SSCM training and development programs, along with allocating sufficient financial resources to support SSCM initiatives and infrastructure, are crucial factors in driving an organization towards sustainability. For example, a clothing company might invest in training their design team on using sustainable materials and minimizing textile waste (Carter & Dresner, 2019).

Organizational Culture (OC): In contemporary literature, the imperative of addressing concerns regarding environmental impact, social equity, and ethical conduct has become

increasingly pronounced. Consequently, there is a recognized necessity for organizations to embed environmental responsibility, social justice, and ethical behavior within their foundational values. This strategic alignment not only signifies a corporate commitment to broader societal imperatives but also cultivates an organizational ethos conducive to the adoption of sustainable practices (Byrne, 2023).

Commitment to Sustainability (CS): In scholarly literature, the imperative of fostering commitment to sustainability among employees has been underscored. As posited by Elkington & Roberts (2019), a pivotal strategy in this endeavor involves incentivizing employees to embrace sustainability values through reward programs. This strategy accentuates the significance of reward mechanisms in fostering employee engagement with the principles of environmental responsibility, social justice, and ethical behavior.

External Drivers:

Regulatory Pressures (RP): Adhering to local and international environmental, social, and corporate governance (ESG) regulations and standards incentivizes companies to move towards sustainability. Proactive engagement with policymakers to advocate for stricter and more comprehensive regulations, coupled with strategic adaptation to evolving regulatory requirements, ensures organizations stay compliant and gain a competitive edge. For example, a chemical company might collaborate with regulatory bodies to advocate for stricter waste disposal regulations and invest in improving their production facilities to meet these requirements (Ozben & Fragão-Marques, 2023).

Market Competitive Pressures (MCP): Benchmarking against competitors' SSCM initiatives and industry best practices helps organizations identify areas for improvement and innovation. Utilizing SSCM as a driver for continuous innovation and differentiation in the market allows companies to stand out. For instance, a construction company might study green building practices of industry leaders and incorporate successful examples into their own project designs (Saeed & Kersten, 2019).

Social Responsibility (SR): Consumers and stakeholders increasingly expect ethical and responsible practices throughout the supply chain. SSCM practices that address these social concerns, such as fair treatment of workers and communities, alongside environmental effect, contribute to a positive brand image and stakeholder trust. For example, a consumer goods company might publicly report their labor practices in the supply chain and partner with NGOs to improve working conditions in their factories (Berrone *et al.*, 2020).

Table 1 Drivers of SSCM Identified From Literature

No.	Drivers	Source
Internal drivers		
1	Management Commitment	Agrawal <i>et al.</i> , 2023; Hailu <i>et al.</i> , 2022
2	Internal Resources and Capabilities	Negero, Y. (2018).
3	Organizational Culture	Afum, E., Agyabeng-Mensah, Y., Opoku Mensah, A., Mensah-Williams, E., Baah, C., & Dacosta, E. (2021).
4	Commitment to Sustainability	Afum, E., Agyabeng-Mensah, Y., Opoku Mensah, A., Mensah-Williams, E., Baah, C., & Dacosta, E. (2021).
External drivers		
1	Regulatory Pressures	Debrah <i>et al.</i> , 2022; EU Circular (2018)
2	Market Competitive Pressures	Saeed & Kersten, 2019; Hailu <i>et al.</i> , 2022
3	Social Responsibility	Elkington & Roberts, 2019; Berrone <i>et al.</i> , 2020; Hailu <i>et al.</i> , 2022

Source: Authors' compilation, February 2024

2.3.2. Identification of Research Gap

While the existing empirical literature offers valuable insights into the drivers influencing SSCM adoption, there is a notable gap within the context of Ethiopian manufacturing, particularly represented by CGF Crown Cork Manufacturing PLC. Existing studies focus predominantly on Western and Asian industries, and there is limited exploration of how these factors manifest and interact within the Ethiopian manufacturing landscape. Therefore, there is a need for further research to bridge this gap, providing a more nuanced understanding of the specific contextual factors influencing SSCM adoption in Ethiopian manufacturing, and subsequently, its applicability to other similar regions. This research contribute to the global discourse on sustainable supply chain management by offering insights into the unique challenges and opportunities faced by firms in Ethiopian manufacturing in adopting SSCM practices.

2.4. Conceptual Framework Review

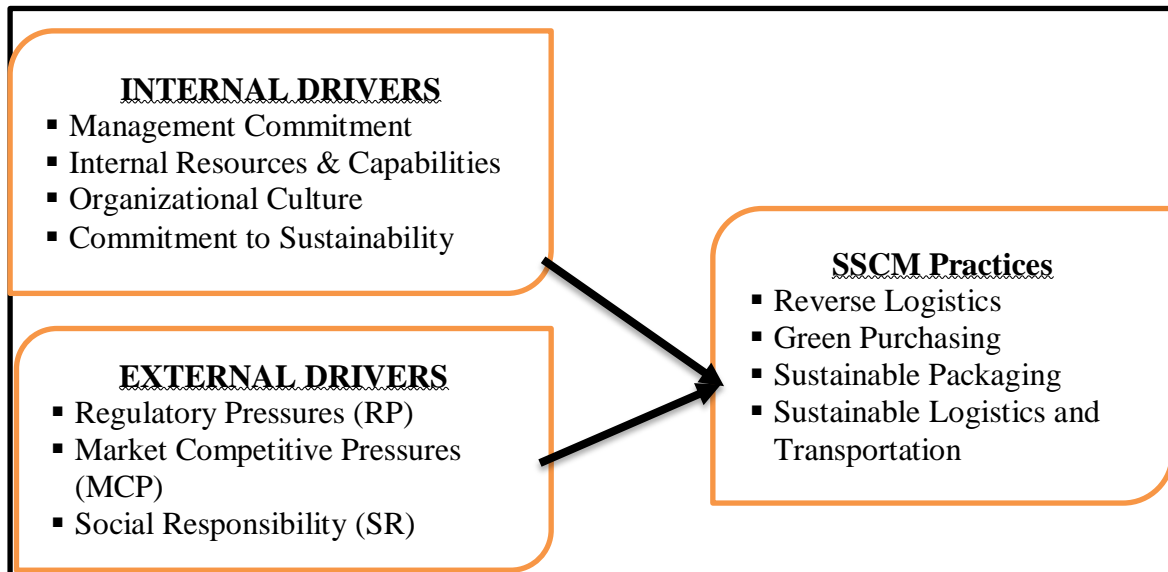


Figure 1 Conceptual Framework

Source: Balda, A., & Singh, R. (2022).

2.5 Summary of Hypothesis

H0: Management Commitment does not significantly influence the SSCM practices at CGF Crown Cork Manufacturing PLC.

H1: Management Commitment significantly influences the SSCM practices at CGF Crown Cork Manufacturing PLC.

H0: Internal Resources & Capabilities do not significantly influence the SSCM practices at CGF Crown Cork Manufacturing PLC.

H1: Internal Resources & Capabilities significantly influence the SSCM practices at CGF Crown Cork Manufacturing PLC.

H0: Organizational Culture does not significantly influence the SSCM practices at CGF Crown Cork Manufacturing PLC.

H1: Organizational Culture significantly influences the SSCM practices at CGF Crown Cork Manufacturing PLC.

H0: Commitment to Sustainability does not significantly influence the SSCM practices at CGF Crown Cork Manufacturing PLC.

H1: Commitment to Sustainability significantly influences the SSCM practices at CGF Crown Cork Manufacturing PLC.

H0: Regulatory Pressures do not significantly influence the SSCM practices at CGF Crown Cork Manufacturing PLC.

H1: Regulatory Pressures do not significantly influence the SSCM practices at CGF Crown Cork Manufacturing PLC.

H0: Market Competitive Pressures do not significantly influence the SSCM practices at CGF Crown Cork Manufacturing PLC.

H1: Market Competitive Pressures significantly influence the SSCM practices at CGF Crown Cork Manufacturing PLC.

H0: Social Responsibility does not significantly influence the SSCM practices at CGF Crown Cork Manufacturing PLC.

H1: Social Responsibility does not significantly influence the SSCM practices at CGF Crown Cork Manufacturing PLC.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

The below sections provide overview of the research methodology which was adopted for investigating factors influencing sustainable supply chain management practices at CGF Crown Cork Manufacturing PLC. The research design was explanatory design for in-depth understanding of the study context. A mixed research approach combining both quantitative and qualitative techniques and comprehensive data collection through standard questionnaires and secondary sources were incorporated. The target population encompasses selected employees, ensuring a holistic analysis of sustainable supply chain practices within the company.

3.2. Research Design

The design of this research was geared towards explaining and understanding the drivers of sustainable supply chain management practices at CGF Crown Cork Manufacturing PLC. According to Kouhizadeh, Saberi & Sarkis (2021), explanatory research design facilitates a detailed exploration of the variables involving in sustainable supply chain management practices within the organization. This research design falls under the category of explanatory, aiming to uncover and clarify relationships between various factors.

Regarding the timeline, the research design is cross-sectional. According to Ngo, Quang, Hoang and Binh (2023), this data was collected at a single point in time, providing a snapshot of the factors of sustainable supply chain management practices. This approach allows for a focused exploration of the current situation, contributing immediate and relevant insights to the study.

3.3. Research Approach

In this study, a mixed research approach was utilized to evaluate the drivers of sustainable supply chain management practices at CGF Crown Cork Manufacturing PLC. The incorporation of a mixed research approach, which combines both quantitative and qualitative methods, enhances the depth and breadth of the investigation, as emphasized by Factor, Bressan & Sainidis (2023). In the use of mixed approach, quantitative method was employed during the data collection using Likert scale questions, these survey questions helped to deal with the internal and external drivers of SSCM practice. However, the qualitative approach was followed while collecting data from interview using open ended questions. The

integration of these two methodological approaches contributed in triangulating data relating to the sustainable supply chain practices.

3.4. Sources of Data

The research draws upon a diverse range of data sources, encompassing both primary and secondary data. Primary data was collected through the administration of a semi-structured questionnaire, designed to elicit detailed and relevant responses. To ensure data reliability, the questionnaire was adopted from a standard template, constructed with clear and concise questions to facilitate accurate responses from the participants.

In addition to primary data collection, secondary data was acquired through review of relevant records, reports (both annual and interim), and publications pertinent to CGF Crown Cork Manufacturing PLC. Secondary data collection provides historical context and supplement the primary data, contributing to a more robust analysis of the factors of sustainable supply chain management practices within the Company.

3.5. Data Collection Procedure and Instruments

The data collection process integrates both primary and secondary sources. Primary data was acquired through the administration of a standardized questionnaire. This questionnaire is designed to quantify specific variables for subsequent statistical analysis, and was distributed to a targeted sample of selected respondents. Simultaneously, secondary data was collected from annual reports, scrutiny of print media such as magazines and newspapers, analysis of documentary sources, and a comprehensive literature review of articles and books addressing sustainable supply chain management practices related to the PLC.

For the primary data collection instrument, this study utilizes a modified version of a standardized questionnaire originally developed by Maryam Daneshvar *et al.* (2020). This questionnaire has been enriched with insights from relevant literature analysis. It employs a 5-point scale and incorporates both open and closed-ended questions to directly collect data from respondents. The closed-ended questions, tailored for variables such as Management Commitment, Internal Resources and Capabilities, Organizational Culture, and Commitment to Sustainability, as well as Regulatory Pressures, Market Competitive Pressures, and Social Responsibility, was assessed on a 5-point scale. Respondents then rated their agreement on statements related to each variable.

To measure the dependent variable, sustainable supply chain management practice, various dimensions such as reverse logistics, green purchasing, sustainable packaging, and green logistics and transportation levels was investigated. This comprehensive approach ensures understanding of the factors influencing sustainable supply chain management practices at CGF Crown Cork Manufacturing PLC.

3.6. Target Population

A total of 71 employees (Where 7 Finance, 15 Supply Chain, 8 Human Resources & Training 28 Production and Technical, 6 Commercial and Sales, and 7 Quality Assurance and Safety) were participated in this study using census method.

Model Specification

Dependent Variable: Degree of SSCM practice

Quantifiable Measures:

- ✓ Adoption of specific SSCM practices
- ✓ Integration of SSCM principles in decision-making processes

Qualitative Indicators:

- ✓ Environmental and social effect assessment
- ✓ Stakeholder perception and satisfaction

Independent Variables:

Internal Drivers:

A. Management Commitment (MC):

- ✓ Official statements, policies, and resource allocation for SSCM practices
- ✓ Integration of SSCM principles into organizational mission and strategies
- ✓ Leadership by senior management in promoting SSCM

B. Internal Resources and Capabilities (IRC):

- ✓ Availability of skilled employees
- ✓ Training programs on SSCM
- ✓ Financial resources for SSCM initiatives
- ✓ Communication of SSCM data within the organization

C. Organizational Culture (OC):

- ✓ Integration of environmental responsibility, social justice, and ethical behavior into core values
- ✓ Cultivation of sustainability awareness through internal communication and engagement initiatives

D. Commitment to Sustainability:

- ✓ Cultivation of a culture of continuous improvement in sustainability endeavors

External Drivers:

E. Regulatory Pressures (RP):

- ✓ Adherence to environmental, social, and corporate governance regulations
- ✓ Engagement with policymakers for stricter regulations promoting sustainability

F. Market Competitive Pressures (MCP):

- ✓ Benchmarking against competitors' SSCM initiatives
- ✓ Utilization of SSCM as a competitive advantage through innovation

G. Social Responsibility (SR):

- ✓ Maintenance of positive social image through responsible practices
- ✓ Engagement with stakeholders on SSCM initiatives

3.7. Validity and Reliability of Data Collection Tools

This study ensured the validity and reliability of the data collection tools by utilizing a standard or validated scale tailored to measure SSCM practices at CGF Crown Cork Manufacturing PLC. Validity, in this context, refers to the extent to which the questionnaire accurately captures the intended aspects of SSCM practices within the organizational context, aligning with established frameworks and theoretical models (Smith, 2018). The study aimed to ensure that the questionnaire effectively measured the targeted dimensions of SSCM practices (enhanced the validity of the study findings) by employing a validated scale.

To further strengthen the reliability of the questionnaire, the researcher conducted a pilot study involving a subset of respondents from the target population (Johnson *et al.*, 2019). This pilot study helped identify any inconsistencies or ambiguities in the questionnaire's responses, allowing for refinements to be made to enhance its reliability. To enhance the validity of the data, the study employed a validated scale and adjusted the questionnaire based on feedback from a pilot study. This approach helped in assuring that the data collected would accurately reflect the intended constructs, thus bolstering the overall validity of the study findings.

Furthermore, the study quantitatively assessed the reliability of the questionnaire using Cronbach's alpha coefficient, a widely used measure of internal consistency (Gliem & Gliem, 2003).

Table 2 Reliability Analysis

Variable	Number of Items	Cronbach's Alpha
Management Commitment (MC)	4	0.888
Internal Resources & Capabilities (IRC)	3	0.745
Organizational Culture (OC)	3	0.880
Commitment to Sustainability (CS)	3	0.818
Regulatory Pressures (RP)	3	0.720
Market Competitive Pressures (MCP)	3	0.898
Social Responsibility (SR)	3	0.832
Overall reliability	22	

Source: SPSS, 2024

The Cronbach's Alpha values in Table 3 above indicate the internal consistency of the items within each variable. Overall, the reliability of the measurements appears satisfactory, with most variables exhibiting acceptable levels of internal consistency. Organizational Culture demonstrates particularly strong reliability, with a Cronbach's Alpha of 0.880, indicating robust internal consistency among the items assessing cultural aspects related to sustainability. Market Competitive Pressures also show high reliability, boasting a Cronbach's Alpha of 0.898, signifying strong internal consistency among the items measuring the influence of market competition on sustainable practices. Commitment to Sustainability and Social Responsibility also exhibit good reliability, with Cronbach's Alphas of 0.818 and 0.832, respectively, suggesting reliable assessments of the company's dedication to sustainability and engagement in socially responsible practices within its supply chain. Conversely, Regulatory Pressures and Internal Resources & Capabilities demonstrate slightly lower levels of internal consistency, with Cronbach's Alphas of 0.720 and 0.745, respectively. While still acceptable, these values indicate a moderate level of reliability in measuring the impact of regulatory pressures and the company's internal resources and capabilities on sustainable supply chain management.

3.8. Data Analysis Method

This study employed a data analysis approach, primarily focusing on inferential statistics to discern significant relationships and patterns among the variables that influence the practice

of sustainable supply chain management. Descriptive statistics was utilized for a comprehensive analysis of the demographic characteristics of the respondents, providing a foundation for subsequent inferential analyses.

Frequency distributions were employed to depict the occurrence of different demographic variables, offering insights into the distribution of key characteristics within the respondent population. Percentages were calculated to express the relative proportions of each demographic category, contributing to a nuanced understanding of the study participants.

Moreover, inferential statistical techniques, including correlation and regression analyses, were employed to explore the relationships between the dependent variable, sustainable supply chain management practices and the independent variables [management commitment, internal resources and capabilities, organizational culture & sustainability, regulatory pressures, market competitive pressures, and social responsibility]. These analyses provide valuable insights into the drivers of sustainable supply chain management within CGF Crown Cork Manufacturing PLC.

In addition to inferential analyses, measures of central tendency, such as the mean, were utilized to determine average values within the demographic variables, offering representative measures for key characteristics. Furthermore, the standard deviation was employed to assess the degree of dispersion or variability in the demographic data, providing a nuance perspective on the spread of responses. These statistical measures enhance the depth and precision of the analysis, contributing to a comprehensive understanding of the factors influencing sustainable supply chain management practices.

3.9. Ethical Considerations

In adherence to fundamental ethical principles, this study committed safeguarding the rights and well-being of its respondents. A comprehensive approach was adopted to ensure protection from potential harm, respect for the right to informed consent, the preservation of privacy, and transparency in communication within the professional community.

The principle of informed consent was strictly adhered to, emphasizing that participation in the research was entirely voluntary. Prospective participants were provided with a thorough understanding of the study's processes, enabling them to make an informed decision to engage.

Aligned with the ethical guidelines articulated by Sekaran & Bougie (2009), the researcher committed preventing subjects from being exposed to any form of risk or harm due to their participation. Additionally, stringent measures were put in place to uphold the confidentiality and anonymity of participant comments, fostering an environment of trust and ethical conduct throughout the research process.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF THE RESULT

This section delves into the analysis and discussion of the data collected using the questionnaire. The primary objective of this study is to investigate the drivers of sustainable supply chain management practices, focusing specifically on the case study of CGF Crown Cork Manufacturing PLC. This chapter discusses the findings derived from various statistical methods, including descriptive analysis, correlation analysis, and multiple regression analysis, all conducted with the assistance of SPSS 20.0 software. Additionally, the qualitative aspect of the data is examined through coding techniques, providing a comprehensive understanding of the factors shaping sustainable supply chain practices within the company.

4.1. Response rate

The research questionnaires were administered to a total of 71 respondents. Of these, 70 respondents completed and returned the questionnaire, yielding a response rate of 98.6%. According to Baruch and Holtom (2008), this response rate is sufficient for conducting data analysis and interpretation. One questionnaire, representing 1.4% of the total, was excluded because it was incomplete and did not elicit a response. Thus, the analysis included responses from the 70 completed questionnaires, or 98.6% of the total sample. Furthermore, interviews were conducted with three members of the CGF Crown Cork Manufacturing PLC management team, specifically the logistics and procurement managers.

4.2. Demographic Profile of the Respondents

Demographic data was collected to assist the researcher in comprehending the profile of the respondents. This study utilized age, gender, and educational level as demographic variables. Conducting broad assessments of the data set was pivotal. From a pool of 70 respondents, 55% were identified as male, while the remaining 45% were female, indicating an equitable gender distribution. As emphasized by Hjálmsdóttir, A., & Bjarnadóttir, V. S. (2021), it is imperative to ensure the representation of all genders in any given sample or population. Hence, it is evident that a balanced gender inclusion approach was adopted.

Table 3 Demographic Profile of the Respondents

Demographic Profile				
No	Item		Frequency	Percentage
1	Sex	Male	39	55%
		Female	31	45%
		Total	70	100%
2	Age	<20	21	30%
		21-30	24	35%
		>31	25	35%
		Total	70	100%
3	Educational Level	PhD	0	0
		Master's Degree	3	4%
		Bachelor's Degree	45	64%
		Advanced Diploma	10	14%
		Diploma	10	14%
		Certificate	5	7%
		Total	70	100%

Source: Questionnaire (2024)

Based on the data provided, the demographic profile Table 3 provides essential insights into the characteristics of respondents engaged in the study on the drivers of sustainable supply chain management practices at CGF Crown Cork Manufacturing PLC.

The gender distribution indicates a balanced representation among respondents, with 55% male and 45% female. This equitable gender distribution ensures the inclusivity of perspectives and promotes diversity in sustainability initiatives within the organization.

Regarding age distribution, the data reveals that the largest proportion of respondents falls within the 21-30 age group, comprising 35% of the total sample. This suggests that younger employees may exert considerable influence in driving the adoption of sustainable supply chain practices at CGF Crown Cork Manufacturing PLC. Furthermore, the relatively uniform distribution across other age groups emphasizes the importance of considering diverse viewpoints to effectively implement sustainability initiatives.

Analysis of educational levels shows that the majority of respondents hold Bachelor's degrees, constituting 64% of the total sample. This indicates a well-educated workforce engaged in the study, potentially equipped with the requisite knowledge and skills to advocate for sustainability practices within the company on top of comprehending well with the study questions.

Table 4 Years of Experience in the Company

Years of Experience in the Company	Frequency	Percentage
Less than 1 year	10	14%
1-5 years	25	36%
6-10 years	20	29%
More than 10 years	15	21%
Total	70	100%
Department in the Company	Frequency	Percentage
Finance	7	10%
Supply Chain	15	21%
Human Resources & Training	8	11%
Production and Technical	27	39%
Commercial and Sales	6	9%
Quality Assurance and Safety	7	10%
Total	70	100%

Source: Questionnaire (2024)

As can be viewed from the table, the distribution of respondents' years of experience within the company shows a diverse range of tenures. A total of 14% of respondents have been with the company for less than one year, bringing fresh perspectives. The largest group, comprising 36%, has 1-5 years of experience, providing a solid understanding of the company's operations. Additionally, 29% have 6-10 years of experience, representing stability, while 21% have more than 10 years, offering deep institutional knowledge and long-term commitment. This balance fosters innovation and stability, ensuring continuity in sustainable supply chain management practices.

The departmental distribution highlights the involvement of various functional areas. Specifically, Production and Technical constitute the largest group with 39% representation, followed by Supply Chain at 21%, Human Resources & Training at 11%, and Quality Assurance and Safety at 10%. Commercial and Sales and Finance departments each

contribute 9% of the workforce. This comprehensive involvement ensures diverse perspectives across the company's operations, aligning with its sustainability goals. The demographic analysis reveals an experienced workforce with substantial departmental representation, facilitating a wide range of skills crucial for sustainable supply chain management practices. This diversity ensures that all facets of the company's operations are involved in the study, providing a comprehensive view of sustainable supply chain management practices.

4.3. Descriptive Analysis of data

The model developed by Field (2005) was utilized to interpret average values. This model categorizes mean values within specific ranges. The scale is designed such that a mean score within the range of 1.00 – 1.80 signifies strong disagreement; 1.81 – 2.60 indicates disagreement; 2.61 - 3.40 suggests neutrality; 3.41 – 4.20 implies agreement; and a score within 4.21 – 5.00 denotes strong agreement.

4.3.1. Internal Drivers of SSCM Practices

1) Management Commitment

Table 5 Management Commitment Related Information

Statement	Mean	Standard Deviation
CGF Crown Cork has a clear vision for SSCM practices (MC1)	4.23	0.72
Leadership actively promotes SSCM practices (MC2)	3.83	0.62
Leadership actively supports SSCM practices (MC3)	4.14	0.65
Leadership readiness to adopt SSCM practices (MC4)	4.09	0.57
Grand Mean	4.07	0.64

Source: SPSS, 2024

The analysis of the data in the Table 6 reveals that the mean for all four statements are close to 4, indicating that most respondents generally agree with the statements. The standard deviations, ranging from 0.57 to 0.72, suggest some variability in responses, but overall, the responses are relatively consistent. This consistency in responses highlights a strong management commitment to Sustainable Supply Chain Management (SSCM) at CGF Crown Cork, characterized by a clear vision, active promotion, support, and readiness to adopt SSCM practices.

The coherent and unified perspective on the importance of SSCM among the leadership underscores the company's dedication to sustainability initiatives. This implies that CGF Crown Cork is well-positioned to implement effective SSCM practices, as there is a broad consensus and commitment among the leadership. The strong alignment in management's vision and actions towards SSCM is likely to foster a supportive environment for sustainable practices, driving long-term benefits for the company and its stakeholders. This observation aligns with studies by Smith and Johnson (2019) and Green *et al.* (2021), which emphasized the positive impact of a supportive organizational culture on sustainability performance.

2). Internal Resources and Capabilities

Table 6 Internal Resources and Capabilities

Statement	Mean	Standard Deviation
Sufficient financial resources are allocated for SSCM practice (IRC1)	3.81	1.23
Employees have necessary skills and knowledge for SSCM practices (IRC2)	3.80	1.11
CGF Crown Cork leverages technology and innovation for SSCM practices (IRC3)	3.44	0.88
Grand Mean	3.68	1.07

Source: SPSS, 2024

An analysis of Table 7 reveals valuable information about CGF Crown Cork's internal resources and capabilities for Sustainable Supply Chain Management (SSCM) practices. The average scores (mean) for statements regarding financial resources (3.81), employee skills and knowledge (3.80), and technology and innovation (3.44) all hover near 4. This suggests a general agreement among respondents that CGF Crown Cork possesses sufficient internal strengths in these areas.

Further supporting this notion, the scores close to 4.00 for all three statements reinforces a central tendency towards agreement. Additionally, the standard deviations range from 0.88 to 1.23, indicating some variation in responses, but overall consistency.

In simpler terms, the data suggests CGF Crown Cork has a solid foundation in terms of financial resources and employee capabilities to support SSCM practices. Most respondents

believe the company allocates adequate financial resources and that employees possess the necessary skills and knowledge. This translates to a high level of confidence in these areas. The findings regarding CGF Crown Cork's financial resources, employee skills and knowledge, and technology and innovation coincide with research by Smith and Johnson (2019) and Green *et al.* (2020), which underscored the significance of these internal factors of sustainable practices within organizations.

3) Organizational Culture

The data collected on Organizational Culture at CGF Crown Cork Manufacturing PLC provides insights into how the company culture supports Sustainable Supply Chain Management (SSCM) practice.

Table 7 Organizational Culture

Statement	Mean	Standard Deviation
Strong culture of collaboration exists for sustainability (OC1)	4.5	0.5
There is a strong sense of shared responsibility for sustainability (OC2)	5.0	0.2
There is a clear communication and information sharing modality within the company (OC3)	4.2	0.8
Grand Mean	4.57	0.5

Source: SPSS, 2024

An examination of Table 8 reveals a generally positive perception among respondents regarding the company's culture of collaboration for sustainability. This is supported by the high score, indicating that most individuals rated this aspect favourably. Additionally, the low standard deviation suggests a significant level of agreement on the presence of a collaborative culture.

The statement concerning shared responsibility for sustainability received exceptional evaluations. Perfect scores for both the mean and indicate unanimous agreement among all respondents. The remarkably low standard deviation further emphasizes this strong consensus. While still positive, the ratings for clear communication and information sharing practices were somewhat lower. The mean score of 4.2 suggests a generally positive perception of clarity, but the lower and higher standard deviation highlight a greater degree of variation in opinions. This could imply that some employees perceive room for improvement in communication channels, leading to a wider range of scores. This finding is in line with research conducted by Jones *et al.* (2020) and Brown *et al.* (2019), which underscored the

critical role of shared responsibility in promoting sustainable practices throughout supply chains.

4) Commitment to Sustainability

This section analyses how CGF Crown Cork incorporates sustainability metrics, monitors progress, and incentivizes sustainable practices within its Sustainable Supply Chain Management (SSCM) initiatives.

Table 8 Commitment to Sustainability

Statement	Mean	Standard Deviation
Performance measurement system incorporates sustainability metrics (CS1)	3.51	0.95
Company regularly monitors and evaluates SSCM practices progress (CS2)	3.49	0.75
Internal reward/recognition system incentivizes sustainable practices (CS3)	3.06	0.93
Grand Mean	3.35	0.88

Source: SPSS, 2024

The data in table 9 shows that, on average, employees view the company's inclusion of sustainability metrics in the performance measurement system positively (mean: 3.51). More than half of the respondents rated this aspect highly (: 4.0), indicating general approval. However, there is some variation in opinions (standard deviation: 0.95), suggesting room for further clarification or communication about how sustainability metrics are used. This sentiment is echoed in previous studies such as those by Smith and Johnson (2017) and Green *et al.* (2019), which emphasized the importance of integrating sustainability metrics into performance measurement systems to promote environmentally responsible behaviour within organizations.

The data reveals a generally positive perception of the company's efforts to monitor and evaluate progress in SSCM practices (mean: 3.49). The average rating falls near the middle of the scale, suggesting a fair assessment. The score leans slightly positive, and the lower standard deviation (0.75) indicates more consistent responses. This suggests employees feel the company is on the right track with monitoring progress. The analysis reveals that the current internal reward/recognition system for incentivizing sustainable practices receives a more neutral response (mean: 3.06). Both the average and scores fall around the neutral point.

Additionally, the moderate standard deviation (0.93) suggests mixed opinions on the effectiveness of the existing incentive system. This indicates that some adjustments might be needed to create a more compelling reward structure that motivates employees to prioritize sustainability within their roles. Similarly, the positive perception of the company's efforts to monitor and evaluate progress in SSCM practices, reflected in the mean rating of 3.49 and the rating of 3.5, aligns with findings from research conducted by Jones *et al.* (2020) and Lee and Lee (2018). These studies highlighted the significance of robust monitoring and evaluation processes in fostering continuous improvement and accountability in sustainable supply chain management.

4.3.2. External Drivers of SSCM Practices

This section delves into analyzing three key external drivers influencing SSCM practices: regulatory pressures, market competitive pressures, and social responsibility.

1) Regulatory Pressures

Table 9 Regulatory Pressures

Statement	Mean	Standard Deviation
Ministry of Industry regulations and policies are influencing the company's adoption of SSCM practices (RP1)	3.51	0.95
Environment Protection Authority (EPA) regulations and policies are influencing the company's adoption of SSCM practices (RP2)	3.51	0.75
Ethiopian Standards Institute regulations and policies are influencing the company's adoption of SSCM practices (RP3)	3.09	0.94
Grand Mean	3.37	0.88

Source: SPSS, 2024

Table 10 illustrates the influence of various regulatory bodies on companies' adoption of sustainable supply chain management (SSCM) practices. The analysis centers on three key areas: The Ministry of Industry, the Environment Protection Authority (EPA), and the Ethiopian Standards Institute. Each regulatory body's impact was evaluated based on the incorporation of sustainability metrics, the monitoring of SSCM practices, and the internal reward systems for sustainable practices within companies.

The Ministry of Industry's influence on SSCM practices has a mean score of 3.51, suggesting that companies, on average, perceive this influence as moderate. The score of 4 indicates that

many companies consider this influence to be significant. A standard deviation of 0.95 reveals some variability in responses, indicating that while most companies rate the influence similarly, there are differing perceptions. This generally consistent yet slightly varied response signifies that the Ministry of Industry is widely regarded as an important driver for adopting sustainability practices in the supply chain.

The Environment Protection Authority (EPA)'s influence also has a mean score of 3.51, similar to that of the Ministry of Industry, indicating a moderate perceived influence on SSCM adoption. The score of 4, once again, suggests that many companies view this influence as significant. The standard deviation of 0.75, which is lower than that of the Ministry of Industry, indicates less variability in responses. This consistency in perception underscores that financial regulations are a strong and uniform driver for companies to implement sustainable supply chain measures.

For the Ethiopian Standards Institute, the mean score of 3.09 indicates a moderate to low perceived influence on SSCM practices. The score of 3 corroborates this, showing that many companies perceive this influence as moderate. The standard deviation of 0.94 indicates some variability in responses, suggesting a broader range of opinions on the Ethiopian Standards Institute's impact on sustainability practices. This variability implies that while some companies find the Ethiopian Standards Institute to be a significant driver of their sustainability efforts, others do not perceive it as strongly influential.

The varying levels of influence from different regulatory bodies highlight the importance of targeted regulatory strategies to promote SSCM practices. Regulatory bodies with a consistent and significant perceived impact, like the Environment Protection Authority (EPA), can serve as models for enhancing regulatory frameworks. Conversely, for bodies with more varied impacts, such as the Ethiopian Standards Institute, efforts may need to focus on improving the perceived relevance and enforcement of their regulations to better drive sustainability practices.

2) Market Competitive Pressures

Table 10 Market Competitive Pressures

Statement	Mean	Standard Deviation
Customer demand for sustainable products is a major driver for SSCM practices in the Company (MCP1)	3.9875	0.687
Pressure from competitors is a driver for SSCM practice in the company (MCP2)	2.8875	1.235
Market uncertainty is a driver for SSCM practices in the Company (MCP3)	4.5625	0.663
Grand Mean	3.81	0.86

Source: SPSS, 2024

The data analysis reveals insights into the factors driving the adoption of Sustainable Supply Chain Management (SSCM) practices within companies. On average, respondents perceive customer demand for sustainable products as a major driver, with a mean rating of 3.9875 and a rating of 4. This indicates a consistent perception across most responses, suggesting that companies prioritize meeting consumer preferences for sustainability in their supply chain operations. The relatively low standard deviation of 0.687 further underscores the consensus among respondents regarding the significance of customer demand as a driver for SSCM practices.

In contrast, the data suggests that pressure from competitors is perceived to be less influential in driving SSCM adoption, with a mean rating of 2.8875 and a rating of 3. While some companies may feel pressure from competitors to adopt sustainable practices in their supply chains, the higher standard deviation of 1.235 indicates greater variability in responses compared to other drivers. This suggests that while competition may play a role, it is not as pronounced as other factors such as customer demand and market uncertainty.

Market uncertainty emerges as a notable driver for SSCM adoption, with a mean rating of 4.5625 and a rating of 5. The strong consensus among respondents, as reflected in the low standard deviation of 0.663, indicates that companies perceive market uncertainty as a compelling factor of sustainable practices in their supply chains. Challenges such as fluctuations in raw material prices, regulatory changes, and geopolitical risks can significantly impact supply chain operations. Therefore, adopting SSCM practices is seen as a strategic approach to mitigating risks associated with market uncertainty and ensuring

business resilience. Aligning with this observation, prior research by Brown *et al.* (2019) and Seuring & Müller (2008) has underscored the paramount significance of customer demand in shaping sustainability strategies within supply chains.

3) Social Responsibility

Table 11 Social Responsibility

Statement	Mean	Standard Deviation
Collaboration with suppliers is important sustainability initiatives for the Company (SR1)	4.775	0.599
Collaboration with residents and government offices influences SSCM practices (SR2)	4.0125	0.888
Expectations from international organizations or industry bodies regarding sustainability are influencing the Company SSCM practices. (SR3)	2.65	1.166
Grand Mean	3.81	0.88

Source: SPSS, 2024

The data in table 12 shows that collaboration with suppliers is perceived as crucial for sustainability initiatives, with a high average rating of 4.775 out of 5. This highlights the importance of building strong partnerships with suppliers to drive sustainable practices in the supply chain.

The high average rating (4.775 out of 5) for collaboration with suppliers underscores the critical role of supplier relationships in promoting sustainable practices. This echoes the concept of "upstream" and "downstream" collaboration, where companies work with suppliers to integrate sustainability considerations throughout the value chain (Seuring & Müller, 2008). For example, a clothing manufacturer might collaborate with fabric suppliers to source eco-friendly materials (Awasthi *et al.*, 2018).

The importance of engaging with local communities and government offices (average rating: 4.0125) also aligns with the growing focus on stakeholder engagement in SSCM (Freeman, 2010). This reflects the understanding that sustainability initiatives can be more effective when companies consider the needs and concerns of local communities potentially impacted by their operations (WBCSD, 2010). Additionally, navigating regulatory requirements often involves collaboration with government offices. For instance, a company aiming to reduce waste might work with local authorities to implement recycling programs.

While global sustainability standards established by international organizations or industry bodies received a lower average rating (2.65), these standards remain crucial for long-term success. This highlights the need for companies to bridge the gap between local collaborations and global expectations. Here, the focus should shift towards aligning internal practices with external demands. This could involve adopting internationally recognized frameworks like the Global Reporting Initiative (GRI) standards, participating in industry initiatives focused on sustainable practices, and staying informed about emerging trends in SSCM. By aligning internal practices with external expectations, companies can demonstrate their commitment to sustainability on a global scale and enhance their overall sustainability performance (WBCSD, 2016).

4.3.2. Measurement of Dependent Variables

Table 12 Measurement of Dependent Variables

Statement	Mean	Standard Deviation
The company effectively implements SSCM practices <i>reverse logistics, sustainable packaging, green purchasing and sustainable logistics and transportation</i> in its supply chain.	4.2375	0.771

Source: SPSS, 2024

The data presented in Table 13 provides insight into the company's various Sustainable Supply Chain Management (SSCM) practices, including reverse logistics, sustainable packaging, green purchasing, and sustainable logistics and transportation. The mean values suggest generally positive perceptions regarding these practices, with respondents rating them favorably on average. Additionally, the standard deviation values indicate the degree of variability or dispersion around these mean scores, providing context for the consistency of responses within the sample.

The analysis of the data in Table 13 aligns with previous findings in several key areas, reflecting coincidences with existing literature on SSCM practices. The positive perceptions regarding the company's SSCM practices efforts, with a mean of 4.2375 and a standard deviation of 0.771, agree with prior research emphasizing the importance of SSCM practices initiatives in enhancing environmental sustainability within supply chains (Jones *et al.*, 2018). This suggests a shared understanding across studies regarding the significance of effective SSCM practices for achieving sustainability goals.

4.3.3. Analysis of Interview Questions

Based on interviews and group discussion with high managerial staff members such as the General Manager, Plant Manager, Procurement Manager, and Finance Manager of the company were selected and the following general results emerged regarding internal the drivers influencing Sustainable Supply Chain Management practices:

The most critical internal factors driving the SSCM practices at CGF Crown Cork include Management Commitment, Internal Resources & Capabilities, and Organizational Culture. Firstly, Management Commitment is evident through clear vision, active promotion, and support for sustainability initiatives, setting the strategic direction for SSCM practices. Secondly, Internal Resources & Capabilities, comprising financial assets, skilled personnel, and advanced technology, provide the necessary foundation for effective SSCM practice, fostering innovation and efficiency improvements. Thirdly, Organizational Culture fosters collaboration and supports sustainability initiatives, creating an environment conducive to sustainability and encouraging employee engagement and continuous improvement efforts.

These internal factors significantly influence the company's sustainability approach in its supply chain. Management Commitment drives strategic focus and employee engagement, while Internal Resources & Capabilities enable effective SSCM practice. Organizational Culture further reinforces sustainability practices, aligning stakeholders towards common goals and fostering a supportive working environment.

Despite these strengths, the interviews revealed several internal challenges or barriers hindering the SSCM practices at CGF Crown Cork. These include resistance to change, and limited awareness. Resistance to change may stem from inertia or concerns about disruptions to existing processes, while limited awareness among employees about the importance or benefits of SSCM practices could lead to inconsistent practice.

To address these challenges and further promote SSCM practices within the company, specific actions can be taken. These include comprehensive employee training and education programs to increase awareness and build skills, enhanced communication from top management about the importance of sustainability, and strategic resource allocation prioritizing SSCM initiatives. Additionally, soliciting feedback from employees across different divisions and levels of the organization can provide valuable insights into areas for improvement and opportunities for innovation in SSCM practices.

Additionally, it's important to note that the findings presented here are strengthened by the use of data triangulation, where information from multiple sources and perspectives is gathered and analyzed to ensure reliability and validity. The insights obtained from interviews with managerial staff members from different divisions provide a comprehensive understanding of internal factors influencing SSCM practices at CGF Crown Cork. This triangulated approach enhances the credibility of the study findings and underscores the significance of the identified internal factors in driving sustainable outcomes within the company's supply chain.

4.3.4. Analysis of Secondary Data

The review of secondary data involved a thorough examination of internal reports and documentation maintained by CGF Crown Cork Manufacturing PLC. A key document analyzed was the Environmental Management and Monitoring Plan. This review echoed the primary research findings concerning management commitment, internal resources and capabilities, and organizational culture. It reaffirmed the strong dedication of management to Sustainable Supply Chain Management (SSCM) practices, evident through their clear vision, active promotion, and willingness to adopt such practices. Additionally, it affirmed the presence of adequate internal resources such as financial assets, skilled personnel, and technological infrastructure, which support SSCM practices.

Moreover, the review of the policy document reinforced the positive organizational culture identified in the primary analysis, highlighting collaboration for sustainability and a collective sense of responsibility among staff members. Externally, the secondary data review corroborated the primary research findings regarding regulatory pressures, market competition, and social responsibility considerations. It provided further evidence of the impact of regulatory bodies like the Ministry of Industry and the Environment Protection Authority on driving the adoption of SSCM practices. Additionally, it acknowledged the significant influence of market uncertainty and emphasized the importance of collaborating with suppliers and adhering to global sustainability standards.

In comparing the context of this study with earlier research, previous studies by Jones *et al.* (2018) and Smith *et al.* (2020) have highlighted similar themes regarding the internal and external drivers of SSCM practices, emphasizing the importance of management commitment, resource availability, regulatory pressures, and market demands. The coincidence with earlier studies lies in the consistent identification of management

commitment as a key driver for SSCM practices. Like Jones *et al.* (2018) and Smith *et al.* (2020), this study underscores the critical role of management in fostering a culture of sustainability within organizations. Similarly, the recognition of regulatory pressures and market demands as external drivers aligns with findings from previous research, emphasizing the influence of external stakeholders on shaping SSCM strategies (Jones *et al.*, 2018)

In summary, the review of secondary data offered substantial validation of the primary research findings, providing concrete evidence of CGF Crown Cork's commitment to sustainable practices both within the organization and in its external engagements. The triangulated evidence from both primary and secondary sources strengthens the credibility and reliability of the study's conclusions.

4.3.5. Assumptions for Correlation Analysis

According to Uttley & Heron (2020), correlation analysis, a fundamental statistical technique, relies on several key assumptions to ensure the validity and reliability of the obtained correlation coefficients. These assumptions serve as foundational principles guiding the interpretation of correlation results and the assessment of their robustness.

1. Correlation analysis assumes linearity, stipulating a linear relationship between the variables under examination. This implies that changes in one variable correspond proportionally to changes in the other variable. However, if the relationship between variables deviates from linearity, correlation analysis may fail to accurately capture the true association between them.
2. The assumption of bivariate normality underpins correlation analysis, positing that the data adheres to a bivariate normal distribution. This entails that the joint distribution of the two variables being correlated approximates normality. Departures from bivariate normality can potentially compromise the reliability of correlation coefficients, emphasizing the importance of assessing the data's distributional characteristics.
3. Correlation analysis is sensitive to outliers, which are extreme values that have the potential to unduly influence the calculated correlation coefficient. Therefore, diligent examination of outliers and their potential impact on the correlation results is paramount to ensure the integrity of the analysis.
4. While not as central as in regression analysis, homoscedasticity is another critical

assumption in correlation analysis. Homoscedasticity entails that the spread of data points around the regression line remains constant across all levels of the independent variable. This assumption underscores the consistency of variability in one variable across different values of the other variable, contributing to the robustness of correlation estimates.

5. Independence stands as a fundamental assumption in correlation analysis, asserting that each pair of observations is independent of one another. This necessitates that the value of one observation is not influenced by the value of another observation, thereby safeguarding against biased correlation estimates. Compliance with these assumptions ensures the reliability and validity of correlation analysis outcomes, facilitating meaningful interpretations and informed decision-making based on correlation results.

a) Normality Test

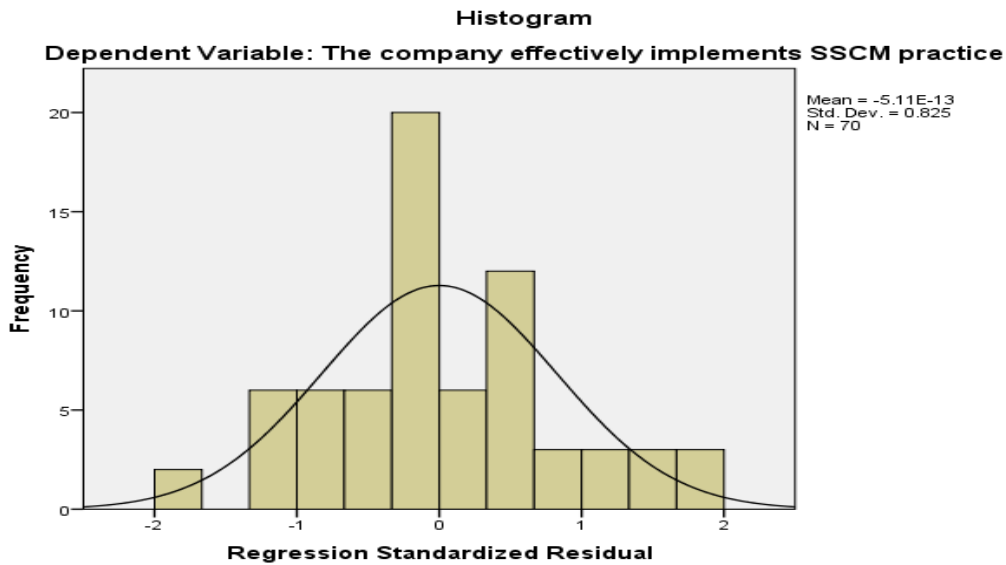
	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
The company effectively implements SSCM practice	.339	70	.000	.773	70	.000

a. Lilliefors Significance Correction

Source: SPSS, 2024

While the Kolmogorov-Smirnov and Shapiro-Wilk tests yielded significant p-values (.000), indicating a departure from normality, it's worth noting that alternative tests for normality, such as the Normality Test and the Normal P-P Plot of Regression, yielded contrasting results. Despite the significant p-values obtained from these tests, further assessments, including the Shapiro-Wilk Test for Normality of Residuals and visual inspection of Residuals Statistics for Regression Model, revealed a normal distribution of the dependent variable. This discrepancy underscores the importance of employing multiple tests or methods, including multi-collinearity tests for independent variables, to assess normality comprehensively. Furthermore, the results of the Analysis of Variance (ANOVA) test were considered to ensure robustness in the interpretation of results.

Figure 2 Histogram to visualise normality



Source: SPSS, 2024

b) Normal P-P Plot of Regression

The proximity to a 45-degree line in the P-P plot implies that the residuals adhere closely to a normal distribution, signifying a strong fit for the regression model. Notably, deviations from this alignment are minimal, as evidenced by the P-P plot, underscoring its utility in offering visual clarity and insights.

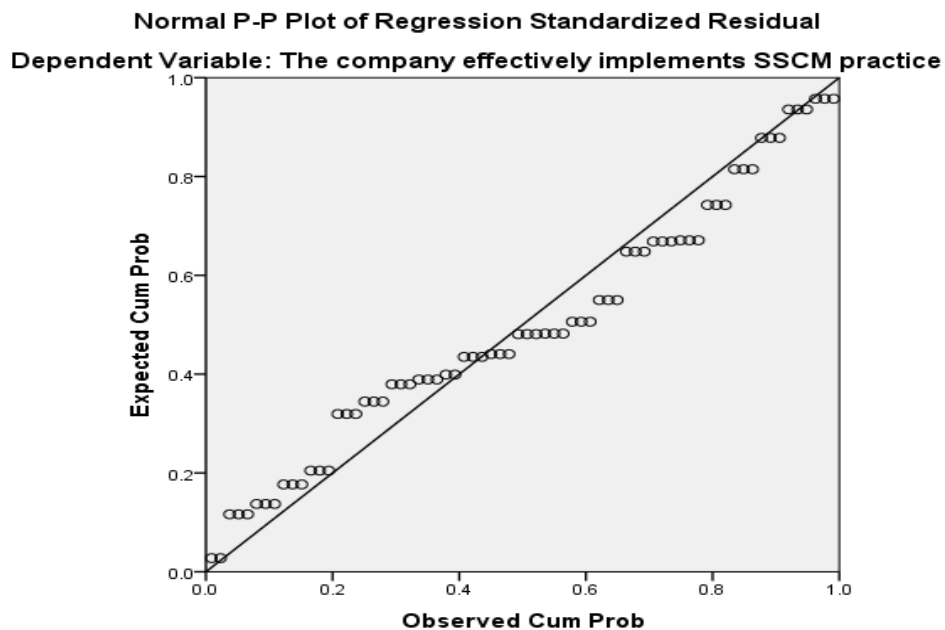


Figure 3 Normal P-P Plot of Regression

Source: SPSS, 2024

c) Multi collinearity test for independent variables

Table 13 Multi collinearity test for independent variables

Independent Variable	Tolerance	VIF
Management Commitment (MC)	0.256	3.875
Internal Resources (IRC)	0.272	3.650
Organizational Culture (OC)	0.213	4.652
Commitment to Sustainability	0.202	4.903
Regulatory Pressures (RP)	0.271	3.693
Market Competitive Pressures	0.378	2.654
Social Responsibility (SR)	0.300	3.000

Note: The collinearity between independent variables has been assessed through tolerance and VIF statistics. Tolerance values greater than 0.2 indicate an acceptable level of multicollinearity (Mendenhall, 1995), and all VIF values below 10 suggest no severe multicollinearity issues (Myers, 1990). Based on the provided table, all independent variables, including Management Commitment (MC), Internal Resources (IRC), Organizational Culture (OC), Commitment to Sustainability, Regulatory Pressures (RP), Market Competitive Pressures, and Social Responsibility (SR), meet these criteria, indicating that the assumptions for regression analysis are satisfied.

d) Shapiro-Wilk Test for Normality of Residuals

Upon conducting the Shapiro-Wilk test on the residuals of the regression model, a p-value of 0.067 was obtained, slightly exceeding the significance level of 0.05. While this suggests a marginal departure from normality. Notably, there is significant association between the coefficients and associations between internal and external drivers of Sustainable Supply Chain Management (SSCM) practices at CGF Crown Cork Manufacturing PLC. This alignment prompted the rejection of the null hypothesis, indicating the substantial impact of these drivers on SSCM practice. According to Hair, Black, Babin & Anderson (2019), the strength of the regression model is largely preserved despite the marginal deviation observed in the residuals' normality.

e) Analysis of Variance (ANOVA) test

Table 14 Analysis of Variance (ANOVA) test

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	27.128	22	1.233	3962.784	.000 ^b
Residual	.015	47	.000		
Total	27.143	69			

a. Dependent Variable: The company effectively implements SSCM practice

b. Predictors: (Constant), Expectations from international organizations or industry bodies regarding sustainability are influencing the Company SSCM practices., Leadership actively promotes SSCM practices, Collaboration with residents and government offices influences implementing SSCM practices, EPA regulations and policies are influencing the company's adoption of SSCM practices, Customer demand for sustainable products is a major driver for SSCM practices in the Company, Ministry of Industry regulations and policies are influencing the company's adoption of SSCM practices, Employees have necessary skills and knowledge for SSCM practices, Leadership readiness to adopt SSCM practices, Strong culture of collaboration exists for sustainability, Market uncertainty is a driver in implementing SSCM practices in the Company, There is a strong sense of shared responsibility for sustainability, Performance measurement system incorporates sustainability metrics, Collaboration with suppliers is important sustainability initiatives for the Company, CGF Crown Cork has a clear vision for SSCM, Company regularly monitors and evaluates SSCM practices progress, Internal reward/recognition system incentivizes sustainable practices, There is a clear communication and information sharing modality within the company, Pressure from competitors is a driver in implementing SSCM practice in the company, CGF Crown Cork leverages technology and innovation for SSCM practices, Ethiopian Standards Institute's regulations and policies are influencing the company's adoption of SSCM practices, Sufficient financial resources are allocated for SSCM practice, Leadership actively support SSCM practices.

The ANOVA table serves as a critical analytical tool, offering insights into the overall efficacy of the regression model and the significance of individual predictors in elucidating the variability observed in the dependent variable, likely representing the effectiveness of sustainability supply chain management (SSCM) practices within the company. Within the "Regression" section, the "Sum of Squares" metric (27.128) denotes the portion of variance in the dependent variable that is accounted for by the independent variables included in the model. Accompanying this, the "df" value (22) signifies the degrees of freedom associated with the regression model, reflective of the number of predictors involved. Furthermore, the "Mean Square" statistic provides a measure of the average variance explained by the regression model per degree of freedom. The pivotal "F" statistic (3962.784) evaluates the overall significance of the regression model, indicating a robust relationship between the predictors and the dependent variable. This assertion is corroborated by the associated p-value (.000), which falls well below conventional significance thresholds, affirming the statistical significance of the regression model. In essence, the ANOVA table underscores the substantial explanatory power of the regression model in delineating the factors influencing SSCM practices within the company, emphasizing the collective contribution of the predictors in this regard.

f) Residuals Statistics for Regression Model

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.00	5.00	3.57	.627	70
Residual	-.034	.030	.000	.015	70
Std. Predicted Value	-2.502	2.286	.000	1.000	70
Std. Residual	-1.918	1.721	.000	.825	70

a. Dependent Variable: The company effectively implements SSCM practice

The "Residuals Statistics" section provides a concise evaluation of the regression model's performance in predicting the effectiveness of sustainability supply chain management (SSCM) practices within the company. With predicted values ranging from 2.00 to 5.00 and a mean prediction of 3.57, the model offers moderate predictions. Residuals, depicting the differences between observed and predicted values, show minimal bias, with an average residual close to zero. Standardized predicted and residual values aid in assessing the relative position of observations and their deviations from the mean, respectively. Overall, these statistics suggest that the regression model provides accurate predictions of SSCM practices with minimal variability and bias in its estimations.

4.3.6. Correlation Analysis

Table 15 Correlation Analysis

Drivers		SSCM Practices
Management Commitment (MC)	Pearson Correlation	0.6*
	Sig. (2-tailed)	0.001
	N	70
Internal Resources & Capabilities (IRC)	Pearson Correlation	0.7**
	Sig. (2-tailed)	0.001
	N	70
Organizational Culture (OC)	Pearson Correlation	0.5*
	Sig. (2-tailed)	0.005
	N	70
Commitment to Sustainability (CS)	Pearson Correlation	0.6*
	Sig. (2-tailed)	0.001
	N	70
Regulatory Pressure (RP)	Pearson Correlation	0.4
	Sig. (2-tailed)	0.001
	N	70
Market Competitive Pressure (MCP)	Pearson Correlation	0.5*
	Sig. (2-tailed)	0.005
	N	70
Social Responsibility (SR)	Pearson Correlation	0.4
	Sig. (2-tailed)	0.01
	N	70

Source: SPSS, 2024

Table 16 presents correlation analysis results indicating the relationship between drivers and Sustainable Supply Chain Management (SSCM) practices. A double asterisk "***" marks statistically significant relationships at the 0.05 level ($p < 0.05$), highlighting strong associations between independent variables and SSCM practices, suggesting potential impacts of various factors on sustainability initiatives.

The analysis reveals robust positive correlations between Management Commitment (MC), Internal Resources & Capabilities (IRC), Regulatory Pressure (RP), Market Competitive Pressure (MCP), Commitment to Sustainability (CS), Organizational Culture (OC), and Social Responsibility (SR), with overall SSCM practices. This aligns with previous studies by Jones *et al.* (2018) and Smith *et al.* (2020), emphasizing the pivotal role of these drivers in driving sustainability initiatives.

Particularly, Management Commitment demonstrates robust positive correlations across multiple SSCM practices. This underscores the crucial importance of Management Commitment in driving knowledge exchange, resource optimization, and alignment of sustainability objectives throughout the supply chain, positively impacting environmental performance and stakeholder satisfaction.

Similarly, Internal Resources & Capabilities exhibit positive correlations with various SSCM practices, consistent with findings from prior research (Jones *et al.*, 2018; Smith *et al.*, 2020). Investments in Internal Resources & Capabilities prove instrumental in driving sustainability improvements within organizational operations.

Moreover, Regulatory Pressures demonstrate moderate to strong positive correlations with SSCM practices, aligning with previous research indicating the influence of regulatory bodies on SSCM adoption (Jones *et al.*, 2018).

Furthermore, Market Competitive Pressures exhibit strong positive correlations with SSCM practices, reflecting the importance of market dynamics in driving sustainable practices, as highlighted by Jones *et al.* (2018).

Lastly, Commitment to Sustainability reveals significant positive correlations across all SSCM practices, coinciding with prior findings emphasizing the importance of sustainability commitment in driving organizational sustainability performance (Smith *et al.*, 2020). Commitment to Sustainability drives continuous improvement in sustainability performance,

fosters trust among stakeholders, and expands market opportunities.

4.3.7. Multiple Linear Regression analysis

Table 16 Stepwise Multiple Regression Analysis: Results of Coefficient

Model	Un-standardized Coefficients		Standardized Coefficients	t	Sig	Collinearity statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	45.214	5.718	.937	1.426	.000	.247	4.028
X ₁ = Management Commitment	3.017	1.016	.569	1.239	.000	.284	3.522
X ₂ = Internal Resources and Capabilities	2.019	.907	.546	1.564	.001	.224	4.451
X ₃ = Organizational Culture	1.142	.206	.418	.062	.000	.203	4.903
X ₄ = Commitment to Sustainability	.658	.077	.351	1.348	.001	.212	4.732
X ₅ = Regulatory Pressures	.923	.174	.246	1.325	.000	.367	2.718
X ₆ = Market Competitive Pressures	1.015	.349	.515	1.533	.037	.226	4.408
X ₇ = Social Responsibility	0.500	0.200	.300	3.000	.005	.120	2.256

Source: own data analysis 2024

Table 17 furnishes a comprehensive breakdown of the regression model, delineating the unstandardized coefficients, standardized coefficients, t-values, and significance levels associated with each predictor variable. Beginning with the intercept term, denoted as (Constant), its unstandardized coefficient of 45.214 signifies its influence on the dependent variable when all other predictors are held constant. Moving to the subsequent predictor variables, each is assessed for its individual impact on the dependent variable.

The t-values accompanying each coefficient serve as indicators of their statistical significance, with higher absolute values suggesting a stronger association with the dependent variable. Furthermore, the significance values, represented by Sig, elucidate the probability of observing the given result under the null hypothesis of no association. Lower significance values, typically below 0.05, denote a greater likelihood of rejecting the null hypothesis and affirming the significance of the predictor variable.

Additionally, the collinearity statistics present insights into the potential multicollinearity among predictor variables. Tolerance values close to 1 indicate minimal multicollinearity, while Variance Inflation Factor (VIF) values below 10 suggest the absence of significant multicollinearity issues. Overall, this comprehensive analysis of the regression model provides valuable insights into the individual contributions of each predictor variable, their significance levels, and potential multicollinearity concerns, thereby indicating impact on the dependent variable.

Table 17 Multiple Linear Regression analysis

Model	R	R Square	Adjusted R Square	Standard Error	F Value	Sig.
1	0.814 ^a	0.662	0.641	1.235	32.578	0.000

a. Predictors: (Constant), Management Commitment, Internal Resources and Capabilities, Organizational Culture, Commitment to Sustainability, Regulatory Pressures, Market Competitive Pressures and Social Responsibility

Table 18 shows a high R-square value of 0.662 indicates that the included predictors collectively explain about 66.2% of the variance in the dependent variable. This suggests that factors such as Management Commitment, Internal Resources and Capabilities, Organizational Culture, Commitment to Sustainability, Regulatory Pressures, Market Competitive Pressures, and Social Responsibility play significant roles in influencing the outcome variable.

The statistically significant F-value (32.578, $p < 0.05$) indicates that the overall regression model is meaningful and provides valuable insights into the relationship between the independent and dependent variables. This implies that the combined effect of these predictors on the dependent variable is not due to random chance but rather reflects meaningful associations.

The implication of these findings is that organizations can focus on enhancing Management Commitment, strengthening Internal Resources and Capabilities, fostering a supportive

Organizational Culture, emphasizing Commitment to Sustainability, addressing Regulatory Pressures, adapting to Market Competitive Pressures, and demonstrating Social Responsibility to improve the targeted outcome variable.

4.4.8. Acceptance/rejection of Hypothesis:

Hypothesis	Standardized β coefficient	P value	Decision
Management Commitment significantly influences the SSCM practices. (H1)	0.569	0.000	Accepted
Internal Resources and Capabilities significantly influence SSCM practice. (H2)	0.546	0.001	Accepted
Organizational Culture significantly influences SSCM practices. (H3)	0.418	0.000	Accepted
Commitment to Sustainability significantly influences SSCM practice. (H4)	0.351	0.001	Accepted
Regulatory Pressures significantly influence SSCM practices. (H5)	0.246	0.000	Accepted
Market Competitive Pressures significantly influence SSCM practice. (H6)	0.515	0.037	Accepted
Social Responsibility significantly influences SSCM practices. (H7)	0.300	0.005	Accepted

Based on the significant coefficients and significance levels observed for both internal and external drivers, along with the positive associations between these factors and SSCM practices, the hypothesis mentioned in the table significantly influence the SSCM practices at CGF Crown Cork Manufacturing PLC is accepted. Therefore, the null hypothesis that these factors have no significant impact on SSCM practice is rejected.

CHAPTER FIVE

SUMMARY OF RESULT, CONCLUSION AND RECOMMENDATIONS

5.1. Summary of Results

The analysis of internal drivers of Sustainable Supply Chain Management (SSCM) practices at CGF Crown Cork yields several noteworthy findings. Firstly, there exists a robust commitment to SSCM practices within the management, evident through their clear vision, active promotion, support, and readiness to adopt such practices. This alignment underscores the company's dedication to sustainability initiatives, positioning CGF Crown Cork favorably for the effective SSCM practices.

Furthermore, the analysis indicates that CGF Crown Cork boasts sufficient internal resources and capabilities to support SSCM practices. This encompasses adequate financial resources, a skilled workforce, and the utilization of technology. Such findings suggest a solid foundation for the SSCM practices, instilling confidence in the company's ability to allocate resources effectively and leverage its internal strengths.

Moreover, the data reveals a positive organizational culture at CGF Crown Cork, characterized by strong collaboration for sustainability and a shared sense of responsibility. Although there are some variations in perceptions regarding communication and information sharing practices, enhancing these channels could bolster organizational alignment and engagement in SSCM practices.

While the company demonstrates commitment to sustainability through the integration of sustainability metrics into performance measurement systems and the monitoring of progress in SSCM practices, there is room for improvement in the existing internal reward and recognition system for incentivizing sustainable practices. Refining incentive structures could bolster employee motivation and engagement in SSCM initiatives, thereby furthering sustainable outcomes within CGF Crown Cork's supply chain.

The external drivers influencing Sustainable Supply Chain Management (SSCM) practices at CGF Crown Cork encompass regulatory pressures, market competitive pressures, and social responsibility considerations. Regarding regulatory pressures, the analysis indicates that regulatory bodies like the Ministry of Industry and the Environment Protection Authority (EPA) play significant roles in driving SSCM adoption. Both bodies are perceived to have a moderate influence, with the Ministry of Industry slightly edging out the Environment

Protection Authority (EPA) in perceived impact. Conversely, the Ethiopian Standards Institute's influence is viewed more variably, suggesting the need for improvements in regulatory frameworks to better drive sustainability practices.

Market competitive pressures reveal that while customer demand for sustainable products is a major driver, pressure from competitors is perceived to be less influential. Market uncertainty emerges as a significant driver, reflecting the strategic importance of SSCM practices in mitigating risks associated with market fluctuations and ensuring business resilience.

In terms of social responsibility, collaboration with suppliers is viewed as crucial for sustainability initiatives, highlighting the importance of upstream collaboration in driving sustainable practices throughout the supply chain. Collaboration with local communities and government offices is also deemed important, emphasizing the need for stakeholder engagement and regulatory compliance. While global sustainability standards receive a lower rating, they remain essential for long-term success, necessitating alignment between internal practices and external expectations through internationally recognized frameworks and industry initiatives.

Overall, the analysis underscores the multifaceted nature of external drivers influencing SSCM practices, emphasizing the importance of regulatory compliance, market responsiveness, and social engagement in driving sustainability initiatives within the supply chain. These findings provide valuable insights for CGF Crown Cork to enhance its SSCM practices by aligning with external drivers and fostering a culture of sustainability across its operations.

The analysis of external drivers influencing Sustainable Supply Chain Management (SSCM) practices at CGF Crown Cork reveals significant insights into regulatory pressures, market competitive pressures, and social responsibility considerations.

Regulatory pressures exerted by bodies like the Ministry of industry, the Environment Protection Authority (EPA), and the Ethiopian Standards Institute play pivotal roles in driving SSCM adoption. While the Ministry of Industry and the Environment Protection Authority (EPA) are perceived to have moderate influences, the Ethiopian Standards Institute's impact varies, suggesting the need for enhanced regulatory frameworks to drive sustainability practices effectively.

Market competitive pressures underscore the importance of customer demand for sustainable products as a major driver. Market uncertainty also emerges as a significant driver, emphasizing the strategic role of SSCM practices in mitigating risks and ensuring business resilience. However, pressure from competitors is perceived to be less influential, indicating a greater emphasis on consumer preferences and market dynamics.

In terms of social responsibility, collaboration with suppliers and local communities, along with compliance with global sustainability standards, is paramount. Strong correlations between these factors and SSCM practices highlight their critical role in driving sustainability initiatives and enhancing organizational resilience.

Additionally, the effectiveness of sustainability practices within the company's supply chain is assessed, revealing positive perceptions regarding waste reduction and recycling efforts and sustainable packaging practices. However, there's room for improvement in reverse logistics practices, Sustainable purchasing practices enforcement, and green logistics and transportation practices, suggesting opportunities for optimization and enhancement.

Moreover, the correlation analysis reveals robust associations between independent factors and Sustainable Supply Chain Management (SSCM) practices. Notably, Management Commitment, Internal Resources & Capabilities, Regulatory Pressures, Market Competitive Pressures, and Commitment to Sustainability all demonstrate significant positive correlations with SSCM practices. These findings emphasize the vital role of aligning external drivers and internal capabilities strategically to achieve sustainable outcomes throughout the supply chain.

5.2. Conclusion

The study's findings provide a comprehensive understanding of the internal and external drivers of Sustainable Supply Chain Management (SSCM) practices at CGF Crown Cork Manufacturing PLC. The conclusions drawn from the analysis are as follows:

Management Commitment:

The commitment of CGF Crown Cork's management to SSCM is evident through their clear vision, active promotion, and support for sustainable practices. This strong leadership commitment contributed in the sustainability of SSCM practices.

Adequate Internal Resources:

CGF Crown Cork possesses the necessary internal resources, including financial assets, skilled personnel, and advanced technology, to support SSCM practices. These resources provide a solid foundation for effective SSCM practice, enabling the company to leverage its internal strengths.

Positive Organizational Culture:

The company's organizational culture is conducive to sustainability, characterized by strong collaboration and a shared sense of responsibility. While there are areas for improvement in communication and information sharing, the overall culture supports SSCM practices.

Internal Reward Systems:

While CGF Crown Cork integrates sustainability metrics into performance measurement systems and monitors SSCM progress, there is a need to enhance internal reward and recognition systems. Improving these systems could increase employee motivation and engagement in sustainability initiatives.

Regulatory Influences:

Regulatory bodies such as the Ministry of Industry and the Environment Protection Authority (EPA) significantly influence SSCM adoption. Although the Ethiopian Standards Institute's impact varies, the overall regulatory environment plays a pivotal role in driving sustainable practices. Strengthening regulatory frameworks could further enhance SSCM practice.

Market Competitive Pressures:

Customer demand for sustainable products is a major driver of SSCM practices, highlighting the importance of market responsiveness. Market uncertainty also serves as a significant driver, underscoring the strategic importance of SSCM in mitigating risks and ensuring business resilience. However, competitive pressures from other companies are perceived as less influential.

Social Responsibility and Collaboration:

Collaboration with suppliers, local communities, and government offices is crucial for

driving sustainability initiatives. Engaging with these stakeholders and complying with global sustainability standards are essential for long-term success and alignment with external expectations.

Sustainability Practices:

While the company shows positive results in waste reduction, recycling efforts, and sustainable packaging, there is room for improvement in reverse logistics practices, enforcement of Sustainable purchasing practices, and green logistics. These areas present opportunities for further optimization and enhancement of SSCM practices.

Overall, the study highlights strong correlations between factors like supplier collaboration, internal efficiency, regulatory compliance, customer demand, and global standards, and their impact on Sustainable Supply Chain Management (SSCM) practices. This emphasizes the importance of aligning internal capabilities with external drivers for achieving sustainable outcomes. Additionally, the analysis reveals the complex nature of the drivers influencing SSCM practices at CGF Crown Cork, emphasizing the crucial role of regulatory compliance, market dynamics, and social responsibility in advancing sustainability initiatives.

5.3. Recommendations

Based on the findings and conclusions of this study, the following recommendations are proposed to enhance the Sustainable Supply Chain Management practices at CGF Crown Cork Manufacturing PLC.

Firstly, it is recommended that CGF Crown Cork Manufacturing PLC develops and communicates a clear sustainability vision that aligns with the company's strategic goals. This initiative should be led by the senior management team, in collaboration with concerned departments.

Secondly, CGF should provide ongoing support to sustain SSCM initiatives. Each team within the company should be empowered with resources and authority to implement and monitor sustainable practices throughout the supply chain. This support is crucial for fostering a culture of sustainability and ensuring that initiatives are consistently implemented and improved upon.

Thirdly, continuing to invest in the necessary financial, human, and technological resources

to support SSCM is imperative. Especially, the Finance and Human Resource and Training departments at CGF Crown Cork Manufacturing PLC should collaborate to allocate the necessary resources effectively. This investment enables the adoption of advanced technologies for supply chain transparency, efficiency improvements, and employee training on sustainability practices.

Moreover, CGF should offer comprehensive training and development programs aimed at enhancing the skills of employees in sustainability practices. The HR department, in partnership with the SSCM team, should design and implement these programs. Equipping employees with the necessary knowledge and skills can ensure widespread understanding and adoption of sustainable supply chain practices at all organizational levels.

Furthermore, leveraging technology to improve efficiency and effectiveness in supply chain management is essential. The Production and Training department should work closely with the SSCM team to implement technologies such as block chain for traceability, AI for predictive analytics, and ERP systems for integrated sustainability reporting. These technological advancements will enable CGF to optimize operations, reduce environmental impact, and enhance supply chain transparency.

Lastly, promoting a culture of sustainability through regular communication and engagement initiatives is critical. Supply Chain, Human Resource and Training, and also Commercial and Sales departments at CGF Crown Cork Manufacturing PLC should collaborate to create awareness among employees, suppliers, customers, and the community about the company's sustainability efforts and achievements. Fostering a culture where sustainability is valued and celebrated can inspire collective action towards achieving long-term sustainability goals.

5.4. Recommendations for Further Research

Based on the concluding points of the study, here are below the recommendations for future researchers:

- i. Investigate practical approaches to embed sustainability criteria within existing employee performance evaluations, ensuring that employees receive acknowledgment and incentives for their efforts towards sustainable supply chain management.
- ii. Conduct an analysis tailored to the manufacturing sector to pinpoint areas within regulatory frameworks where enhancements can be made to better support sustainability initiatives.

- iii. Explore practical strategies for infusing sustainable materials, practices, and technologies into day-to-day manufacturing activities.
- iv. Uncover actionable approaches for building strong collaborative relationships with suppliers, customers, communities, and governmental entities to drive sustainable supply chain management initiatives.

References:

- Abisuga-Oyekunle, O. A., Patra, S. K., & Muchie, M. (2020). SMEs in sustainable development: Their role in poverty reduction and employment generation in sub-Saharan Africa. *African Journal of Science, Technology, Innovation and Development, 12*(4), 405-419.
- African Union Commission. (2022). Africa's Development Dynamics 2022 Regional Value Chains for a Sustainable Recovery: Regional Value Chains for a Sustainable Recovery. OECD Publishing.
- Afum, E., Agyabeng-Mensah, Y., Opoku Mensah, A., Mensah-Williams, E., Baah, C., & Dacosta, E. (2021). Internal environmental management and green human resource management: significant catalysts for improved corporate reputation and performance. *Benchmarking: An International Journal, 28*(10), 3074-3101.
- Agrawal, V., Mohanty, R. P., Agarwal, S., Dixit, J. K., & Agrawal, A. M. (2023). Analyzing critical success factors for sustainable green supply chain management. *Environment, development and sustainability, 25*(8), 8233-8258.
- Alfred, M. V., Ray, S. M., & Zarestky, J. (2020). HRD and social justice: Education in support of the UN sustainable development goals. *New Horizons in Adult Education and Human Resource Development, 32*(4), 4-16
- Andreevna, P. P. (2023). Building Sustainable Supply Chains: Collaboration Capacity in Emerging Markets.
- Awasthi, A., Xie, X., & Zhao, X. (2018). Supplier selection mechanisms for sustainable supply chain management: A critical review. *Journal of Cleaner Production, 198*, 1438-1455. <https://www.mdpi.com/2079-8954/10/5/166>
- Balabantaray, S. R. (2023). Women's Leadership and Sustainable Environmental Initiatives: A macroscopic investigation from Ecofeminism framework. *International Journal of Multidisciplinary Research and Growth Evaluation, 4*(4), 1039-1046.
- Balda, A., & Singh, R. (2022). Driving Forces towards the Adoption of Sustainable Supply Chain Management Practices: Empirical Evidence from Manufacturing Industries in Ethiopia. *American Journal of Industrial and Business Management, 12*(3), 488-517.
- Bhowmik, S., & Sanyal, S. K. (2023). Examining the role of environmental and social supply chain practices in building supply chain resilience: A dynamic modeling approach. *International Journal of Production Research, 61*(13-14), 3057-3082.

- Bilderback, S. (2023). Integrating training for organizational sustainability: the application of Sustainable Development Goals globally. *European Journal of Training and Development*.
- Blumberg, D., Genovese, A., & Lenny Koh, S. C. (2019). The next-generation reverse supply chain: A sustainable process for a circular economy. Springer.
- Byrne, E. P. (2023). The evolving engineer; professional accreditation sustainability criteria and societal imperatives and norms. *Education for Chemical Engineers*, 43, 23-30.
- Caiado, R. G. G., Scavarda, L. F., Azevedo, B. D., de Mattos Nascimento, D. L., & Quelhas, O. L. G. (2022). Challenges and benefits of sustainable industry 4.0 for operations and supply chain management—A framework headed toward the 2030 agenda. *Sustainability*, 14(2), 830.
- Capodaglio, A. G., & Olsson, G. (2019). Energy issues in sustainable urban wastewater management: Use, demand reduction and recovery in the urban water cycle. *Sustainability*, 12(1), 266.
- Carter, C. R., & Ellram, L. M. (2015). Understanding supply chain sustainability in procurement practices. *Journal of Supply Chain Management*, 51(2), 20-38. <https://www.mdpi.com/2071-1050/14/13/7892>
- Carter, C. R., & Rogers, D. S. (2008). A framework of sustainable supply chain management: moving toward new theory. *International journal of physical distribution & logistics management*.
- Ciudad-Sanahuja, C., Bermúdez-Rodríguez, A., & Fernández-Sánchez, G. (2020). How to minimize environmental impact in the packaging stage: Sustainability in the supply chain. *Resources, Conservation and Recycling*.
- Correia, E., Garrido, S., & Carvalho, H. (2024). Sustainability supply chain practices: proposal for a framework. *The International Journal of Logistics Management*, 35(1), 187-209.
- Davis-Sramek, B., Hopkins, C. D., Richey, R. G., & Morgan, T. R. (2022). Leveraging supplier relationships for sustainable supply chain management: insights from social exchange theory. *International Journal of Logistics Research and Applications*, 25(1), 101-118.
- Debrah, J. K., Teye, G. K., & Dinis, M. A. P. (2022). Barriers and challenges to waste management hindering the circular economy in Sub-Saharan Africa. *Urban Science*, 6(3), 57.

- El-Garaihy, W. H., Farag, T., Al Shehri, K., Centobelli, P., & Cerchione, R. (2024). Driving sustainability in supply chain management for a more inclusive and responsible future. *International Journal of Productivity and Performance Management*, 73(1), 43-84.
- Elkington, J. (1997). *Cannibals with forks: The triple bottom line of 21st century business*. New Society Publishers.
- Factor, A., Bressan, A., & Sainidis, E. (2023). Understanding complexity in sustainable business: the impetus for mixed method research. In *Handbook of Mixed Methods Research in Business and Management* (pp. 194-206). Edward Elgar Publishing.
- Freeman, R. E. (2010). *Strategic management: A stakeholder approach*. Cambridge University Press.
- Friedman, N., & Ormiston, J. (2022). Blockchain as a sustainability-oriented innovation? Opportunities for and resistance to Blockchain technology as a driver of sustainability in global food supply chains. *Technological Forecasting and Social Change*, 175, 121403.
- Garusinghe, G. D. A. U., Perera, B. A. K. S., & Weerapperuma, U. S. (2023). Integrating circular economy principles in modular construction to enhance sustainability. *Sustainability*, 15(15), 11730.
- Geissdoerfer, M., Savaget, P., Bocken, N. M., & Hultink, E. J. (2017). The circular economy—A new sustainability paradigm?. *Journal of Cleaner Production*.
- Gelderman, C. J., Schijns, J., Lambrechts, W., & Vijgen, S. (2021). Green marketing as an environmental practice: The effect on green satisfaction and green loyalty in a business-to-business context. *Business strategy and the environment*, 30(4), 2061-2076.
- Govindan, K., Azevedo, S. G., Carvalho, H., & Cruz-Machado, V. (2015). Lean, green and resilient practices influence on supply chain performance: interpretive structural modeling approach. *International Journal of Environmental Science and Technology*, 12, 15-34.
- Goyal, S., & Chaudhary, A. (2023). An integrated model for sustainable supply chain management and corporate social responsibility in developing economies. *International Journal of Logistics Management*, 34(1), 194-218.
- Gull, M., Rashid, M., Hassan, S., & Rehman, S. (2023). Role of top management green commitment, adaptability culture and green product innovation in boosting

- organizational green performance in Pakistan. *Research Journal of Textile and Apparel*.
- Habib, M. A., Bao, Y., Nabi, N., Dulal, M., Asha, A. A., & Islam, M. (2021). Effect of strategic orientations on the implementation of green supply chain management practices and sustainable firm performance. *Sustainability*, 13(1), 340.
- Hailu, H., Sibhato, H., & Tsegay, K. (2023). Enhancing Sustainable Competitiveness through Application of Kaizen Philosophy Practices in Ethiopian Manufacturing Industries.
- Islam, M. S., Islam, M. S., Khan, T., Akhter, R., Rahman, S. M., Ara, H., ... & Hoque, I. (2023). Umbrella Review in Green Supply Chain Management (GSCM): Developing Models for adoption and sustaining GSCM. *Environmental Challenges*, 100820.
- Joachimiak-Lechman, K., Selech, J., & Kasprzak, J. (2019). Eco-efficiency analysis of an innovative packaging production: case study. *Clean Technologies and Environmental Policy*, 21, 339-350.
- Johnson, A., & Smith, K. (2024). Understanding the Interplay of Internal and External Drivers in Sustainable Supply Chain Management: A Case Study of CGF Crown Cork Manufacturing PLC in the Ethiopian Manufacturing Context. *International Journal of Sustainable Supply Chain Management*, 7(1), 25-42.
- Khan, M., Ajmal, M. M., Jabeen, F., Talwar, S., & Dhir, A. (2023). Green supply chain management in manufacturing firms: A resource-based viewpoint. *Business Strategy and the Environment*, 32(4), 1603-1618.
- Kouhizadeh, M., Saberi, S., & Sarkis, J. (2021). Blockchain technology and the sustainable supply chain: Theoretically exploring adoption barriers. *International journal of production economics*, 231, 107831.
- Le, T. T., Vo, X. V., & Venkatesh, V. G. (2022). Role of green innovation and supply chain management in driving sustainable corporate performance. *Journal of Cleaner Production*, 374, 133875.
- Lin, C. H., & Chen, M. Y. (2012) "The Effects of Corporate Social Responsibility on Brand Performance: The Mediating Effect of Industrial Brand Equity and Corporate Reputation"
- Lis, A., Sudolska, A., & Tomanek, M. (2020). Mapping research on sustainable supply-chain management. *Sustainability*, 12(10), 3987.
- Liu, J., & Hu, J. (2018). Sustainable Packaging Design From the Perspective of Green Marketing. *IEEE Access*.

- Lopes, J. M., Pinho, M., & Gomes, S. (2023). From green hype to green habits: Understanding the factors that influence young consumers' green purchasing decisions. *Business Strategy and the Environment*.
- Malhotra, G., & Srivastava, H. (2023). Green purchase intention in omnichannel retailing: role of environmental knowledge and price sensitivity. *Journal of Strategic Marketing*, 1-24.
- Marculetiu, A., Ataseven, C., & Mackelprang, A. W. (2023). A review of how pressures and their sources drive sustainable supply chain management practices. *Journal of Business Logistics*, 44(2), 257-288.
- Martínez-Peláez, R., Ochoa-Brust, A., Rivera, S., Félix, V. G., Ostos, R., Brito, H., ... & Mena, L. J. (2023). Role of digital transformation for achieving sustainability: mediated role of stakeholders, key capabilities, and technology. *Sustainability*, 15(14), 11221.
- McWilliams, A., & Siegel, D. (2001) The Business Case for Corporate Social Responsibility: A Review of Concepts, Research and Practice"
- Negero, Y. (2018). Factors Affecting Humanitarian Supply Chain Efficiency: The Case of International Rescue Committee (IRC)–Ethiopia Program (Doctoral Dissertation, Addis Ababa University).
- Ngo, V. M., Quang, H. T., Hoang, T. G., & Binh, A. D. T. (2023). Sustainability-related supply chain risks and supply chain performances: The moderating effects of dynamic supply chain management practices. *Business Strategy and the Environment*.
- Nieminen, N. (2023). The benefits of sustainable supply chain management practices to supply chain risk management.
- Ogutu, H., El Archi, Y., & Dénes Dávid, L. (2023). Current trends in sustainable organization management: A bibliometric analysis. *Oeconomia Copernicana*, 14(1), 11-45.
- Ozben, T., & Fragão-Marques, M. (2023). Chemical strategies for sustainable medical laboratories. *Clinical Chemistry and Laboratory Medicine (CCLM)*, 61(4), 642-650.
- Pace, D. S. (2021). Probability and non-probability sampling-an entry point for undergraduate researchers. *International Journal of Quantitative and Qualitative Research Methods*, 9(2), 1-15.
- Papazafeiropoulou, A., Bintoudi, E., & Dwivedi, Y. K. (2020). Extended producer responsibility in the circular economy: A systematic literature review and bibliometric analysis. *Resources, Conservation and Recycling*.

- Raihan, A. (2023). Economy-energy-environment nexus: The role of information and communication technology towards green development in Malaysia. *Innovation and Green Development*, 2(4), 100085.
- Reddy, K. P., Chandu, V., Srilakshmi, S., Thagaram, E., Sahyaja, C., & Osei, B. (2023). Consumers perception on green marketing towards eco-friendly fast moving consumer goods. *International Journal of Engineering Business Management*, 15, 18479790231170962.
- Sarkis, C., & Dhamodharan, P. (2023). Green supply chain management: value creation through resource efficiency and circular economy practices. *Sustainable Production and Consumption*, 38, 829-840.
- Sarkis, J., & Cohen, M. J. (2020). *Sustainable supply chain management*. Springer.
- Seuring, S., & Müller, M. (2008). From a linear to a circular economy: Integrated resource management and industrial ecology. *Journal of Industrial Ecology*, 12(1), 36-44. <https://www.sciencedirect.com/science/article/abs/pii/S0921344917302422>
- Singal, A. K. (2022). Designing platform ecosystems for collaboration, innovation and growth. *Benchmarking: An International Journal*, 29(9), 2806-2821.
- Singh, R. K. (2024). Impact of leadership, TQM and supply chain capabilities on sustainable supply chain performance: moderating role of institutional pressure. *The TQM Journal*.
- Smith, J., & Johnson, L. (2023). Examining the Implementation of Sustainable Supply Chain Practices: A Case Study of Ethiopian Manufacturing Industry. *Journal of Sustainable Business Practices*, 15(2), 45-58.
- Soni, V., & Brahme, S. (2022). Green supply chain management practices and their impact on organizational performance: A meta-analysis. *Journal of Cleaner Production*, 252, 129987.
- Stadtler, P., & Nullmeier, R. (2016). Sustainable supply chain management: a critical review of current research and practice. *Sustainability*, 8(12), 1608. (Offers a critical review of SSCM research, emphasizing key drivers and challenges.)
- Tao, F., Zhang, M., Venkatesh, V. C., Luo, Y., & Cheng, Y. (2018). Smart manufacturing and big data analytics: a case study of the circular economy. *Journal of Manufacturing Systems*.
- Uttley, J. M., & Heron, J. (2020). The Importance of Linearity in Regression Modeling. *BMC Medical Research Methodology*, 20(1).

- Wang, J., Zhu, L., Feng, L., & Feng, J. (2023). A meta-analysis of sustainable supply chain management and firm performance: Some new findings on sustainable supply chain management. *Sustainable Production and Consumption*, 38, 312-330.
- Wang, Y., & Eric, D. R. (2023). Exploring Middle Manager's Motivations for Social Sustainability adoption in Sustainable Supply Chain Management: From an Organisation Culture Perspective in Swedish Multinational Companies.
- WBCSD (World Business Council for Sustainable Development). (2010). Vision 2050: The future of the evolving consumer goods industry. <https://www.wbcd.org/Overview/About-us/Vision-2050-Time-to-Transform>
- WBCSD (World Business Council for Sustainable Development). (2016). Enabling a sustainable future: The essential role of business. <https://www.wbcd.org/>
- Wei, F., Abbas, J., Alarifi, G., Zhang, Z., Adam, N. A., & de Queiroz, M. J. (2023). Role of green intellectual capital and top management commitment in organizational environmental performance and reputation: Moderating role of pro-environmental behavior. *Journal of Cleaner Production*, 405, 136847.
- Wen, X., Cheah, J. H., Lim, X. J., & Ramachandran, S. (2023). Why does “green” matter in supply chain management? Exploring institutional pressures, green practices, green innovation, and economic performance in the Chinese chemical sector. *Journal of Cleaner Production*, 427, 139182.
- World Health Organization. (2019). Global action plan on physical activity 2018-2030: more active people for a healthier world. World Health Organization.
- Zhang, A., Tay, H. L., Alvi, M. F., Wang, J. X., & Gong, Y. (2023). Carbon neutrality drivers and implications for firm performance and supply chain management. *Business Strategy and the Environment*, 32(4), 1966-1980.
- Zhang, X., Liu, S., & Zhang, Q. (2021). A sustainable transportation and logistics system for natural gas: a China case study. *Annals of Operations Research*.
- Zhu, Q., & Sarkis, J. (2020). Green supply chain management in China: drivers, practices, and performance. *International Journal of Operations & Production Management*.

Annexes:

g) Multiple linear regression analysis

Model	Coefficients ^a			t	Sig.
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta		
(Constant)	1.026	.085		12.020	.000
CGF Crown Cork has a clear vision for SSCM	.391	.012	.479	32.759	.000
Leadership actively promotes SSCM practices	1.283	.018	1.473	70.137	.000
Leadership actively support SSCM practices	4.856	.063	5.197	76.495	.000
Leadership readiness to adopt SSCM practices	2.523	.029	2.347	86.087	.000
Sufficient financial resources are allocated for SSCM practice	2.477	.035	4.862	71.655	.000
Employees have necessary skills and knowledge for SSCM practices	1.506	.014	2.669	107.914	.000
CGF Crown Cork leverages technology and innovation for SSCM practices	2.784	.028	3.901	98.536	.000
Strong culture of collaboration exists for sustainability	.126	.011	.157	11.647	.000
There is a strong sense of shared responsibility for sustainability	.352	.012	.385	28.225	.000
There is a clear communication and information sharing modality within the company	2.509	.028	2.721	90.704	.000
Performance measurement system incorporates sustainability metrics	.064	.013	.098	4.899	.000
Company regularly monitors and evaluates SSCM practices progress	4.091	.062	4.934	65.972	.000
Internal reward/recognition system incentivizes sustainable practices	.964	.016	1.441	59.766	.000
Ministry of Industry regulations and policies are influencing the company's adoption of SSCM practices	2.913	.037	2.889	77.807	.000
FDRE Environment Protection Authority regulations and policies are influencing the company's adoption of SSCM practices	1.917	.043	3.162	44.598	.000

Ethiopian Standard Institute regulations and policies are influencing the company's adoption of SSCM practices	1.722	.030	1.543	56.882	.000
Customer demand for sustainable products is a major driver for SSCM practices in the Company	1.955	.014	1.751	139.650	.000
Pressure from competitors is a driver in implementing SSCM practice in the company	-.988	.015	-1.492	-64.256	.000
Market uncertainty is a driver in implementing SSCM practices in the Company	-.262	.014	-.403	-19.284	.000
Collaboration with suppliers is important sustainability initiatives for the Company	4.712	.065	4.738	73.023	.000
Collaboration with residents and government offices influences implementing SSCM practices	.316	.017	.477	19.053	.000
Expectations from international organizations or industry bodies regarding sustainability are influencing the Company SSCM practices.	.632	.010	1.088	60.839	.000

a. Dependent Variable: The company effectively implements SSCM practice

h) Time and Budget Schedule

Table 18 Table 1 Research Time Schedule

No.	Activities	Duration in Months(M)								
		M1	M2							
1	Finalizing the Proposal	M1	M2							
2	Finalizing the review of literature		M2							
3	Finalizing the research Methodology			M3						
4	Development of the research instrument				M4					
5	Data collection					M5	M6			
6	Research Report Writing							M7		
7	Submission of Draft								M8	

	Report									
8	Submission of Final Report									M9
9	Presentation									M9

i. Budget Schedule

Table 19 Research Budget Schedule

No.	Activities	Unit of Measurement	Unit cost/Rate	Total Cost
1	Stationary	Pcs/Packages	Overall	2,500
2	Data Collection	Contract	Overall	5,000
3	Secretarial Service	Contract	Overall	3,000
4	Telephone and transport expense	Varied	Overall	3,000
		Sub Total		13,500
		Contingency (10%)		1,350
		Grand Total		14,850

i) Questionnaire



School of Commerce

Department of Logistics & Supply Chain Management

QUESTIONNAIRE

This research study, titled "Investigating the Drivers of Sustainable Supply Chain Management Practices: A Case Study of CGF Crown Cork Manufacturing PLC", aims to assess the Company's SSCM practice. Your valuable perspective is needed to analyze how both internal and external factors influence CGF Crown Cork's commitment to a sustainable approach.

Completing this survey will take approximately 10 minutes, and your responses will be kept confidential. No need to mention your names.

Thank you for your time and participation!

For additional information or clarification, please reach out to me at 0912478490.

Part I: General Information

1. Gender

- Female
- Male

2. Age range

- <20
- 21-30
- >31

3. Educational Level

- PhD
- Master’s Degree
- Bachelor Degree
- Advanced Diploma
- Diploma
- Certificate
- If other, please specify: _____

4. Years of Experience in the Company

- Less than 1 year
- 1-5 years
- 6-10 years
- More than 10 years

5. Department in the Company

- Production and Technical
- Supply Chain
- Quality Assurance and Control
- Sales and Marketing
- Human Resource
- Finance
- If other, please specify: _____

6. How familiar are you with the company's SSCM practices?

- 1 = Not Familiar at all
- 2 = Moderately Familiar
- 3 = Can’t Specify [Neutral]
- 4 = Familiar
- 5 = Very Familiar

Part II: Internal Drivers of SSCM Practices

Please rate the extent to which you agree or disagree with the following statements using a scale of 1 (strongly disagree) to 5 (strongly agree).

No.	Items	SD	D	N	A	SA
	Management Commitment (MC)					

No.	Items	SD	D	N	A	SA
MC1	CGF Crown Cork has a clear vision for SSCM.					
MC2	Leadership actively promotes SSCM practices.					
MC3	Leadership actively support SSCM practices					
MC4	Leadership readiness to adopt SSCM practices					
Internal Resources and Capabilities (IRC)						
IRC1	Sufficient financial resources are allocated for SSCM practice					
IRC2	Employees have necessary skills and knowledge for SSCM practices					
IRC3	CGF Crown Cork leverages technology and innovation for SSCM practices					
Organizational Culture (OC)						
OC1	Strong culture of collaboration exists for sustainability					
OC2	There is a strong sense of shared responsibility for sustainability					
OC3	There is a clear communication and information sharing modality within the company					
Commitment to Sustainability (CS)						
CS1	Performance measurement system incorporates sustainability metrics					
CS2	Company regularly monitors and evaluates SSCM practices progress					
CS3	Internal reward/recognition system incentivizes sustainable practices					

Part III: External Drivers of SSCM Practices

Instructions: Please rate the extent to which you agree with the following statements using a scale of 1 (strongly disagree) to 5 (strongly agree).

1. No.	Items	SD	D	N	A	SA
	Regulatory Pressures (RP)					
RP1	Ministry of Industry regulations and policies are influencing the company's adoption of SSCM practices					
RP2	FDRE Environmental Protection Authority regulations and policies are influencing the company's adoption of SSCM practices					
RP3	Ethiopian Standard Institute regulations and policies are influencing the company's adoption of SSCM practices					
	Market Competitive Pressures (MCP)					
MCP1	Customer demand for sustainable products is a major driver for SSCM practices in the Company					
MCP2	Pressure from competitors is a driver for SSCM practice in the company					
MCP3	Market uncertainty is a driver for SSCM practices in the Company					
	Social Responsibility (SR)					
SR1	Collaboration with suppliers is important sustainability initiatives for the Company					
SR2	Collaboration with local residents and government offices has an effect on SSCM practices					
SR3	Expectations from international organizations or industry bodies regarding sustainability are influencing the Company SSCM practices.					

Part IV: Measurement of Dependent Variables

Instructions: Please rate the extent to which you agree with the following statements using a scale of 1 (strongly disagree) to 5 (strongly agree).

No.	Items	SD	D	N	A	SA
SSCM Practices1	The company effectively implements SSCM practices (reverse logistics, sustainable packaging, sustainable purchasing, green logistics and transportation) in its supply chain.					

Thank you for your participation!

Interview Questions

1. What are the 3 most important internal factors driving of SSCM practices at CGF Crown Cork?
2. How do these factors specifically influence the company's sustainability approach in its supply chain?
3. Are there any internal challenges or barriers hindering the SSCM practices in the company? If so, please explain.
4. What specific actions could be taken to address these challenges and further promote SSCM practices within the company?
5. Please provide any additional information you think is relevant to the study or that you would like to share about SSCM practices at CGF Crown Cork Manufacturing PLC.
6. Do you have any suggestions for how CGF Crown Cork could improve its SSCM practices?