Supply Chain Management Practices, Information Advancement and Organizational Performance of Large Flour Milling Companies in Nairobi City County.

Kenya

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Companies not only must reestablish themselves to produce higher-quality goods and services, reduce waste, and adapt to the demand, but also to manage their supply chain management effectively as a result of the increasing number of competing companies growing both locally and internationally. As a result, the study sought to establish the supply chain practices affect the organizational performance of milling company listed Nairobi Stock Exchange. The specific goals will be to determine the influence of Green supply chain practices, supplier management practices, outsourcing practices, and Supply Chain Management on the organizational performance of milling company listed Nairobi Stock Exchange, as well as to determine the moderating effect of information technology on contemporary supply chain practices on the organizational performance of milling company listed Nairobi Stock Exchange. The theory of lean Contract Value, transaction cost theory, theory of supply chain constraints and resource based view theory were used in the study. A descriptive study design was used in this investigation. The study’s target population was the 260 employees of the milling company listed Nairobi Stock Exchange, as defined by the Kenya Association of Manufacturers Directory, who worked in procurement, marketing, finance, security, ICT, or similar management. A structured questionnaire was used to collect data. A sample of 73 respondents was selected using Yamane (2012) formula. Descriptive statistics, inferential statistics was used to analyze the data. A pilot study involving 8 respondents was conducted to determine the data collection tool reliability. The study instrument had Cronbach’s alpha coefficients of between 0.756 and 0.836 on all study constructs and hence fit for the field study. Based on final results the study found that green supply chain practices, supplier management, and outsourcing positively and significantly influence the performance of large-scale flour processing firms in Kenya. Information advancement was identified as a critical moderating factor that enhances the relationship between these supply chain management practices and performance. Specifically, information advancement amplifies the effects of green supply chain, supplier management, and outsourcing on operational performance. The study also suggested that Flour processing firms in Kenya should fully embrace green supply chain practices, including waste management, efficient energy equipment, and the use of natural light where possible to improve sustainability and performance. The study also suggested that Firms should enhance supplier relations by engaging suppliers in product development, sharing information, and rewarding top-performing suppliers to foster commitment and motivation. The study also suggested that Firms should seek cost savings, efficiency, and sustainability when outsourcing services. This can be achieved through supplier performance evaluations and formal contracts. The study also suggested that regularly review information advancement strategies to optimize performance. This study contributed to supply chain management theory by confirming the relationship between supply chain practices, information advancement, and firm performance. It strengthens the theoretical framework and informs policy makers and large-scale flour processing firms about the importance of supplier management, green supply chain, and outsourcing in supply chain management policies and regulations. In practice, the study guides firms on how to enhance performance through effective supply chain management considering information advancement. The study suggested that Future research can explore the relationship between supply chain management and performance in other sectors beyond flour processing, such as agriculture, transportation, shipping, and manufacturing. Additionally, studies can investigate the impact of different moderators, such as dynamic capabilities, legal frameworks, government regulations, and competition, on the relationship between supply chain management and performance. This will contribute to a more comprehensive understanding of supply chain management dynamics

Key Words: Green Supply Chain Practices, Supplier Management Practices, Outsourcing Practices, Technological advancement, Organizational Performance
I.0 INTRODUCTION

1.1 Background of the Study

As a result of the increasing number of competitive companies growing both locally and internationally, organizations must not only reestablish themselves to provide higher-quality goods and services, eliminate waste, and adapt to demand, but also to manage their supply chain management effectively. Companies must overcome a number of challenges to flourish in today’s competitive global markets. To be competitive, businesses must recognize the importance of supply chain techniques that improve not only their own operational efficiency but also the mutual performance of their supply chain partners. Many businesses continue to struggle to understand the dynamic difficulties connected with structured preparation and supply operations by supply network players, despite substantial advances in research and practice (Lori et al., 2011). According to supply chain management, "a network of three or more companies (organizational or individual) especially engaged in the upstream and downstream flow of products, services, funds, and/or information from source to customer" (Masudin, & Fernanda, 2018).

Supply chain management practices are defined as a set of activities carried out by a firm to aid in the successful management of its supply chain (Li et al., 2006). The best supply chain practices are initiatives that impact the entire supply chain, as well as its components and critical activities (Cuthbertson and Piotrowicz, 2008). These tasks are influenced by contextual factors such as industry, company size, supply chain location, and supply chain form and length (Li et al., 2006). As competition is no longer between organizations but across supply chains, effective and dependable Supply Chain Management (SCM) techniques have become a very crucial and beneficial tool for companies to stay competitive in the market and improve corporate efficiency (Ross, 2013). The organizations' competitiveness as a result of the SCM is very vital for the company to maintain its competitive position. Businesses in both local and global marketplaces must be competitive as a result of globalization. This is why it is vital for businesses to increase their operational productivity and the supply chain as a whole (SC). Organizations must be efficient and effective in comparison to their competitors (Christopher, 2016). Furthermore, in order to attain sustainability and optimize revenues, businesses must examine SCM's principles and practices (Qayyum & Ashraf, 2015).

A clear definition of organizational performance is required to comprehend the intricate relationship between SCM practices and company success. There are various dimensions to the concept of firm performance, each of which has been operationalized in different ways in prior supply chain management research. Organizations achieve their goals through attaining a set of pre-determined objectives that are tailored to their mission, vision, and purpose. Quantitative (numerical) and subjective (judgmental) measurements will be used to achieve these goals (Maduenyi, Oke, Fadeyi, & Ajagbe, 2015). Organizational success can be measured in terms of importance, production, effectiveness, and financial viability (Beske-Janssen, Johnson, & Schaltegger, 2015). The degree to which the organization's stakeholders believe the business is significant to their needs is measured by relevance. Effectiveness is the degree to which a corporation is efficient in attaining its policy, mission, and vision. Productivity, on the other hand, refers to how well a company manages its assets, while economic stability refers to the organization's short- and long-term viability (Epstein & McFarlan, 2011).

The global perspective on supply chain management (SCM) practices encompasses a holistic approach to managing the flow and transformation of goods and services from suppliers to users. Public expenditure related to procurement is of significant interest, as it accounts for a substantial portion of GDP in OECD and...
EU countries (Khalid et al. 2012). The role of procurement in driving organizational agendas is crucial due to its influence on external supply chain partners. SCM practices include supplier evaluation, certification, risk management, information sharing, and strategic partnerships, along with technological integration and other key practices. These practices aim to improve the performance of public institutions and enhance environmental sustainability in sectors like agriculture (Lin, 2014).

From a regional perspective, African countries face challenges in their manufacturing sectors, such as limited financial and material logistics support. South Africa, for example, implemented procurement reforms to address past discriminatory practices. Studies in Nigeria and Ghana indicate that SCM practices positively impact performance in manufacturing companies. In Kenya, research examines supply chain determinants in various industries, such as construction and the energy sector. SCM practices like strategic supplier partnerships, information sharing, and customer relationships play a vital role in enhancing performance (Liu, 2018).

At the local level, studies in Kenya explore how SCM practices influence the performance of industries like cement and steel manufacturing, as well as the tea sector. Sustainable supply chain management is recognized as a strategic tool for enhancing competitiveness. Supply chain effectiveness in the public sector relies on prudent management of supplier relationships, inventory, technology, and distribution channels (Adebayo, 2012). Overall, these studies highlight the global, regional, and local importance of SCM practices in improving organizational growth, performance, and sustainability across various sectors and industries.

**Statement of the Problem**

In this contemporary covid-19 pandemic era, successful management of severe market and demand volatility has become the new motto of supply chain managers all across the world. Sustainable supply chain procedures, supplier management methods, outsourcing methods, and supply chain security have all grown more unpredictable, making end-to-end supply and demand planning more difficult. Supply chain instability has been exacerbated by recent natural catastrophes. Kenya, in instance, has a negative trade balance of $12.3 billion in net imports, up $11.6 billion in the past two decades (OEC, 2017). Furthermore, statistics show that manufacturing businesses do badly in comparison to Kenya's service sector, owing to the fact that manufacturing companies need more procedures than service industries (Epstein & McFarlan, 2011). As a result, research has shown that supply chain management practices in Kenya's industrial sector affect performance. Such studies have been concentrated in the manufacturing sectors of developed countries. Further more, the role of advancement in technology in supply chain management practices and organizational performance has not been jointly studied especially in the context of a developing country and in the flour milling sector. As a result, the research sought to establish influence of supply chain practices on performance of large flour milling company listed Nairobi Stock Exchange.

**1.3. Objectives of the Study**

**1.3.1 General Objective of the Study**

The main objective of the study was to assess the influence of supply chain management practices on organizational performance of milling company listed Nairobi Stock Exchange.

**1.3.2 Specific Objectives of the Study**

The study was guided by the following specific objectives.

1. To determine the influence of green supply chain on organizational performance of large scale flour milling company listed Nairobi Stock Exchange.
2. To assess the influence of supplier management on organizational performance of milling company listed Nairobi Stock Exchange.
3. To examine the influence of outsourcing on organizational performance of large scale flour milling company listed Nairobi Stock Exchange.
4. To evaluate the extent to which technological advancement moderates supply chain management and on organizational performance of large flour milling company listed Nairobi Stock Exchange.

1.4 Research Hypothesis

**H₀₁**: Green supply chain does not have significant influence on performance of large flour milling company listed Nairobi Stock Exchange.

**H₀₂**: Supplier management has no significant influence on performance of large flour milling company listed Nairobi Stock Exchange.

**H₀₃**: Outsourcing does not have significant influence on performance of large flour milling company listed Nairobi Stock Exchange.

**H₀₄**: Technological advancement does not significantly moderate the relationship between supply chain management and performance of large flour milling companies listed in Nairobi Stock Exchange.

1.5. Scope of the Study

Unga Group Limited is an agricultural holding company in Kenya which mills wheat and maize and processes baked products and animal nutrition and health products. The company is divided in products produced for human consumption and animal consumption. Unga Group Limited is the only milling company listed on the Nairobi Securities Exchange as at 2022 March. Hence the study will focus primarily on all five companies within Unga Holdings limited that is Unga Limited, Commercial Street Nairobi, Kenya, Unga Farm Care (East Africa) Limited Nairobi, Unga Feed Plants Limited Nakuru, Unga Mineral Nakuru, Unga Limited, Eldoret. The study also will focus on the supply chain practices practiced by large flour milling company listed Nairobi Stock Exchange specifically, supplier relationship, and lean supply chain practices. The study targeted senior staff in the finance, marketing, distribution, procurement, ICT and security departments. Both primary and secondary data will be used in the study. The scope of the study covered the findings or data on supply chain practices collected between 2018 and 2022 of large flour milling company listed Nairobi Stock Exchange

LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Theory of Supply Chain Constraints (TOC)

The Theory of Constraints, introduced by Goldratt(1990), is a management paradigm that focuses on identifying limitations within an organization. TOC asserts that every controllable system is constrained by a small number of limitations, and these limitations must be addressed to improve overall performance (Oglethorpe, & Heron, 2013). The five key steps in TOC involve identifying, exploiting, subordinating, elevating, and revisiting constraints to ensure continuous improvement. The presence of constraints can affect costs, delivery time, customer satisfaction, and overall performance, which is particularly relevant in the context of outsourcing and supplier relationships (Charles, & Ochieng, 2023).

2.1.2 Resource-Based View Theory (RBV)

The Theory emphasizes the significance of internal resources and competencies as the primary source of an organization's competitive advantage. Developed by scholars like Barney (2001) and Wernerfelt (1995), RBV posits that a company's unique and valuable assets, skills, and resource capabilities determine its competitive position. The deployment of resources and competencies by management plays a crucial role in achieving superior results. ERP systems are often employed to enhance organizational efficiency, and various
resources are used throughout the implementation process. The resource-based approach helps in understanding the relationship between IT, business processes, and organizational performance, making it relevant in evaluating IT resources for improving supply chain operations (Charles, & Omwenga, 2018).

2.1.3 Value Chain Theory
Value Chain Theory, introduced by Porter (1999), views organizations as systems consisting of various subsystems engaged in activities that transform inputs into outputs. These activities can be categorized as primary or support activities, and they are essential for all companies. The primary activities include inbound logistics, operations, outbound logistics, sales and marketing, and customer service, while secondary activities involve firm infrastructure, human resources, technological development, and procurement. It also emphasizes the importance of including suppliers and customers in the value chain to create value and improve organizational performance.

2.1.4 Theory of Lean Contract Value:
Lean Contract Value theory is focused on enhancing efficiency by reducing complexity and costs. It involves a series of processes aimed at lowering costs, increasing revenues, and fostering cooperation (Pyzdek & Keller, 2014). It can serve as an analytical tool to identify factors that impact customer satisfaction and hinder organizations from meeting their financial and operational goals. Lean Contract Value encourages teamwork and collaboration as part of its approach (Memia, 2018)

2.2 Conceptual Framework

2.3 Empirical Literature Review
This section includes a review of the study's relevant literature. The empirical review is based on the study's variables on, technology, supplier and customer relationship management, outsourcing, lean supply chain, and organizational performance. The section has been split into sub-sections based on these criteria. The methodology, findings, and suggestions of relevant related research in the context of supply chain practices were used to conduct an empirical evaluation. There have also been gaps found in these research.

Nteta, and Mushonga (2021). identified four drivers and eight obstacles to adoption in the Mozambican manufacturing sector in their research on the drivers and difficulties of management implementation. The research used a qualitative approach, conducting semi-structured interviews with one senior management from each of the eight firms in the industry. The most important drivers were found to be corporate social responsibility, internal organizational policies, and board and senior management support, while the most significant obstacles were found to be culture, costs, and government regulations.

Ravi and Shankar (2017) conducted a study to assess the present status of reverse logistics techniques in four Indian industrial industries. They came to the conclusion that businesses put a higher focus on reverse logistics. According to the study, Indian businesses adopted reverse logistics because of the financial advantages it provides. Reverse logistics is one of the most important strategic management choices that may help a business improve efficiency, according to the study.

In their study on Supplier Relationship Management (SRM) as a macro business process in Ohio, Enz, Schwieterman, & Lambert, (2019) aimed to describe the macro level crossfunctional view of SRM and provide a structure for managing business-to-business relationships in order to co-create value and increase shareholder value. While performance measurement reports are designed to show the impact of individual customers' profitability on the organization's financial performance, the study discovered that close relationships with a small subset of suppliers based on the value they provided over time were required, and that customer service managers needed to interact with other process teams, such as supplier relationship management and sourcing.

Gudda, Bwisa, & Kihoro (2013) looked at the effect of clustering and collaboration on product innovation in manufacturing companies. They selected 126 Small and Medium Enterprises from Kisumu, Kenya's industrial hubs (SMEs). There is a connection between clustering and cooperation in terms of product creation, according to the results. Furthermore, the research discovered that as part of larger innovation policy initiatives, efforts might be made to develop unique supporting measures for different cluster manufacturing SMEs based on their product knowledge gaps.

Halim, Ahmad, and Ramayah (2016), examined the effect of outsourcing on performance and competitive priorities among Malaysian SMEs. A data sample of 100 SMEs was examined using partial least squares. According to the results of the research, although outsourcing had a significant effect on SMEs' performance, outsourcing operations had minimal impact on competitive priority. The outsourcing approach centered on creating a core competitive advantage, which resulted in improved total sales, market share, net profit, return on investment, and financial liquidity, among other advantages.

Rahman, Raza, Afzar, Khan, & Nazir, (2020), used secondary data to establish the key success factors for offshore software outsourcing contract management from the vendors' viewpoint, identifying three phases of
the outsourcing contract: pre-contract, during contract, and post-contract. According to the research, contract flexibility, dependable relationship management, competitive bidding, consultation and negotiation, and quality management are key success criteria for outsourcing vendor companies in the design, management, and execution of outsourcing contracts.

Osoro, & Shale, (2019), investigated the effect of cost reduction on supply chain performance, ICT integration, top management support, and lead time on supply chain performance in the oil sector in Kenya in his study on the role of fleet management optimization on supply chain performance in Hass petroleum oil refinery. Cost reduction, ICT integration, top management support, and lead time all had an impact on management optimization, according to the research. According to the research, in order to accomplish management optimization, companies must have a continuous flow of information.

Marinagi, Trivellas, and Rekritis (2015) investigated the relationship between information quality and supply chain performance, as well as the importance of information sharing as a mediating factor. The authors collected data from 61 manufacturing companies in Greece using a survey technique, confirming the mediating function of information exchange. The results' primary conclusion for managers was that information sharing across supply chain partners enabled better overall performance as a result of enforcing supply chain management techniques that improved information dependability and quality.

Solomon, (2020). looked at the variables that influence supply chain management in Ethiopian breweries. The research was conducted using both quantitative and qualitative methods. According to the results, the connection between factors, production size, and product quality showed a weak association with supply chain integration, a moderate correlation with customer attention and innovation, and a high correlation with marketing and distribution. According to the research, Ethiopian brewers should establish a portfolio of important projects that will help them convert their conventional supply chain into a demand-driven value network. Odalo, Njuguna, and Achoki (2016) utilized the firm growth theory to examine the impact of sales increases over time on financial performance. All the listed businesses in Kenya's agricultural industry were examined using a panel design with descriptive and causal study designs. Sales growth was evaluated using annual increments, while financial success was measured using return on assets (ROA), return equity (ROE), and profits per share (EPS) (EPS). Sales growth had a favorable and substantial impact on financial performance metrics ROA and ROE, but a negative and negligible effect on EPS, according to the research.

2.4 Critique of Existing Literature
The objective of this research was to evaluate the impact of overall supply chain methods on organizational performance in Kenya's major manufacturing companies, as identified by KAM. Most empirical research in the field focused on individual modern supply chain practices and their connection with organizational performance, while others only focused on certain elements of contemporary practices, according to the findings. Hassan, ElBeheiry, and Hussein (2013), for example, concentrated solely on as a driver of organizational performance; Lau (2011) on customer relationship management and organizational performance; Khan and Khan (2013) on successful outsourcing execution; and Otieno, Ondiek, and Odera (2012) on the bullwhip effect as a result of poor lean adoption.

Despite the fact that the majority of the researchers mentioned in the study were able to establish a link between independent factors and organizational performance, they remained quiet on the moderating impact
of information technology (Lambert & Schwieterman, 2012). Most researchers considered information technology to be an independent variable rather than a moderator. Information technology amplifies the effect of supply chain strategies across the company, so it's better to think of it as a moderator rather than a single variable (Vanpoucke, Vereecke, & Muylle, 2017).

Furthermore, the empirical assessment of the subject matter revealed that the majority of research performed in Kenya focused mostly on the service sectors, including banks, hotels, hospitals, and the retail sector (Bashir, Machali, & Mwinyi, 2012; Mwikali & Kavale, 2012; Bosire, Nyaoga, Ombati, & Kongere, 2013). Because the operational environment in the industrial sector may be different, the study must verify the results of previous studies. Similarly, other researchers solely used secondary data to investigate the phenomena (Mwikali & Kavale, 2012; Khan & Khan, 2013). The difficulties of depending exclusively on secondary data have been extensively recognized.

The data being out of context with the study, explicit and implicit mistakes being accepted in future studies, and the environment changing over the period of subsequent research are all examples of critical flaws (Johnston, 2017). Secondary data should be used in conjunction with primary data to give the most accurate and trustworthy information. In addition, some empirically examined data used a qualitative approach to data collection and analysis (Hassan, ElBeheiry, & Hussein, 2013; Lambert & Schwieterman, 2012). The utilization of views and recommendations rather than numerical facts is referred to be a qualitative approach. Qualitative research is often referred to as interpretative research, and since interpretations may be wrong or prejudiced, the results can be contentious, and confidentiality is not guaranteed (Sanjari, Bahramnezhad, Fomani, Shoghi, & Cheraghi, 2014).

2.5 Research Gaps
A lot of studies have been carried out to see how current supply chain techniques affect performance (e.g. Ho, Zheng, Yildiz and Talluri, 2015; Taticchi, Tonelli, & Pasqualino, 2013; Mutunga, Magutu, & Chirchir, 2015; Muma, Nyaoga, Matwere, & Nyambega, 2014). The bulk of these studies, however, have focused on supply chain operations and how they influence performance. This leaves the issue of the effect of supply chain techniques on performance unresolved. This research will fill in the gaps by determining the cumulative impact of these modern supply chain methods on the performance of large manufacturing enterprises in Kenya, as well as the nature of that impact., strength of influence, and rank supply chain chain in large manufacturing firms in Kenya.

Furthermore, the majority of the research reviewed focused on the influence of individual behaviors on performance rather than the moderating effect of information technology, creating a vacuum that this study seeks to address. The inclusion of a moderating variable gives the research a new dimension it didn't have before. As a consequence, the moderating variable sets this research apart from others looking at current supply chain processes. The study's particular aim is to see whether information technology has a positive or detrimental influence on the adoption of certain contemporary methods, as well as if moderation has an effect on performance.

According to the research, the majority of previous studies in Kenya had focused on service companies (Mwikali & Kavale, 2012; Okatch, Mukulu, & Oyugi, 2011). The study's limited focus on a particular sector creates a research gap, which this study aims to fill. The study's results will be based on the large
manufacturing sector in order to correlate them with those of the service sector and offer a unique viewpoint on the effect of existing supply chain techniques and performance. The research will also assess the significance and impact of supply chain procedures. It is evident that the majority of scholars in this area have concentrated on certain aspects of supply chains.

Various studies, however, have not looked at the combined effect of these supply chain techniques on performance. These studies didn't look into them as practices, but rather as ideas for improving supply chain management, and they didn't look into the impact they had on performance. As a result, the purpose of this research is to evaluate the impact of these behaviors on performance as well as their relative impact on performance.

**Research Methodology**

The research design for this study involves a comprehensive plan for data collection and analysis, focusing on describing the characteristics and relationships between supply chain management practices and supply chain performance. The study primarily uses a descriptive survey method to achieve various research objectives, such as describing phenomena, estimating proportions, and discovering associations among different variables. The study's target population comprises 260 employees of five Unga Holdings Limited departments: Finance, Procurement, Distribution, ICT, Marketing, and Security. The sampling frame consists of employees of large flour milling companies under Unga Group Ltd. The study employs a two-stage sampling technique, combining purposive sampling with stratified random sampling to select a representative sample of 75 employees. The sample size is 73 employees. Data collection involves both primary and secondary sources. Primary data is collected through structured and semi-structured questionnaires, with questionnaires being the primary data collection instrument. Questionnaires are cost-effective and ensure anonymity. Qualitative and quantitative data are collected. A pilot test is conducted to ascertain the validity and reliability of the questionnaire. This trial-run helps identify and eliminate ambiguities or biases in question wording, ensuring that the instrument is reliable and valid. Data analysis is performed using descriptive and inferential statistics with the assistance of SPSS software. Descriptive statistics include frequencies, percentages, means, and visual representations. Inferential statistics are applied using multiple regression models to establish the relationships between independent and dependent variables. The reliability of the models is assessed through \( R^2 \), F-tests, t-values, and p-values. The study examines the moderating role of technology advancement using interaction effects in the regression model. The interaction term includes the technology advancement variable (M) in the model to assess its impact on the relationship between supply chain management practices and performance.

**Findings and Discussion**

**4.1 Response rate**

A total of 75 staff working in finance, Procurement, distribution, ICT, marketing and security departments at Unga Holdings limited were asked to respond to the questionnaire. Out of 75 questionnaires administered, 93% (70 respondents) fully filled the questionnaires while 7% (5 respondents) were non-responsive. This rate was considered appropriate to derive the inferences regarding the objectives of the research. Table 4.1 below represents the response rate for 75 staffs involved in the actual research study.

**Table 4.1: Response Rate**

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filled questionnaires</td>
<td>70</td>
<td>93</td>
</tr>
<tr>
<td>Unreturned questionnaires</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>
4.2 Descriptive Statistics for all Variables

4.2.1 Green Procurement Practices

The respondents were asked to respond on the adoption of Green Procurement Practices in their organization. From the results, most respondents agreed that company has embraced energy efficient electrical equipment as depicted by mean of 3.800 and standard deviation of 0.4026. The respondents were in agreement that organizations have a waste management policy as indicated by mean of 4.2000 and standard deviation of 0.40269. The results also indicated respondents were neutral that the organization uses returnable containers for distribution of the products as indicated by a mean of 3.4000 with a standard deviation of 0.49320. This observation was unique since Unga holding limited uses bags that are not returned to the firm after goods are sold. The response differed with Wee and Wu (2009) that Green Procurement Practices foster cooperation among customers and providers, foster reliability and successful procurement from the early stages thus improving organizational performance.

The results also indicated the staff were neutral that the firm has an efficient reverse logistic management system as shown by mean of 3.2000 with a standard deviation of 0.40260. Further results indicate respondents agreed that Unga Holdings limited experience remarkable reduction in cost of electricity since architectural design of the firm allows natural lighting as indicated by a mean of 4.0000 with a standard deviation of 0.0000. The overall results indicate that most of the respondents were either neutral while some agreed that adoption of Green Procurement Practices was in place to improve performance whereas none strongly agreed that the firm had embraced Green Procurement Practices. The results were presented in the table 4.2 below.

Table: 4.2 Green Procurement Practices

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The organization uses returnable containers for distribution of the products.</td>
<td>3.4000</td>
<td>.49320</td>
</tr>
<tr>
<td>There is a waste management policy in the organization</td>
<td>4.2000</td>
<td>.40269</td>
</tr>
<tr>
<td>The organization has an efficient reverse logistic management system.</td>
<td>3.2000</td>
<td>.40269</td>
</tr>
<tr>
<td>The architectural design of the firm allows natural Lighting</td>
<td>4.0000</td>
<td>.00000</td>
</tr>
<tr>
<td>All electrical equipment and tools are energy efficient</td>
<td>3.8000</td>
<td>.40269</td>
</tr>
</tbody>
</table>

N=75

4.2.2 Supplier Management Practices

The respondents were asked to respond on the adoption of supplier management practices in their organization. The respondents were requested to indicate the extent supplier management is practiced in organization and the results were as tabulated above. From the results, staff were neutral that the organization has long term contracts with its main suppliers as shown by a mean of 3.4000 and standard deviation of 1.20808(values are spread over wide range from the mean). The findings differed with McManus, (2012) that manufacturing companies adopt long terms supplier contracts to foster supply chain performance. Respondents strongly agreed that the organization rewards its best performing suppliers as indicated by a mean of 4.4000 supported by a standard deviation of 0.49320. Also, respondents were neutral that suppliers are involved in product development as indicated by a mean of 3.4000 with a standard deviation of 0.80539. The respondents then strongly agreed that organization trains its suppliers as shown by mean of 4.4000, and SD of 0.49320. Further, respondents also agreed that Unga holding shares information with its suppliers as indicated by a mean of 4.0000 and standard deviation of .00000.

Overall the respondents had a moderate opinion on how supplier management as a supply chain management practice was used in achieving organizational performance. The respondents did not fully support findings by...
Heizer and Render (2005) that through supplier management practices companies attain low cost due to effective responsiveness, timely delivery and transport costs thus improving organizational performance. The results were presented in the table 4.3 below.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The organization has long term contracts with its main suppliers</td>
<td>3.4000</td>
<td>1.20808</td>
</tr>
<tr>
<td>The suppliers are involved in product development</td>
<td>3.4000</td>
<td>.80539</td>
</tr>
<tr>
<td>The organization shares information with its suppliers</td>
<td>4.0000</td>
<td>.00000</td>
</tr>
<tr>
<td>The organization trains its suppliers</td>
<td>4.4000</td>
<td>.49320</td>
</tr>
<tr>
<td>The organization rewards best performing suppliers</td>
<td>4.4000</td>
<td>.49320</td>
</tr>
</tbody>
</table>

N=75

4.2.3 Outsourcing

The respondents were asked to respond on the application of outsourcing in their organization. The respondents were requested to indicate the extent to which outsourcing was embraced in Unga holding limited. From the results, respondents were neutral that Unga Holdings was satisfied with its outsourced services as indicated by a mean of 3.4000 and standard deviation of 1.20808. Respondents agreed that the organization has saved cost through outsourcing as indicated by a mean of 3.6000 with a standard deviation of 0.49320. The findings relatively concurred with Karthi et.al. (2012) that outsourcing may not necessarily result in cost savings.

Also, respondents were neutral that Unga Holdings frequently evaluates services from outsourced organization as indicated by a mean of 3.2000 with a standard deviation of 0.98639. The respondents agreed Unga Holdings has formal contract with its outsourced partners as indicated by a mean of 4.0000 with a standard deviation of 0.0000. Further results indicated that respondents agreed that embracing outsourcing improves on efficiency as indicated by a mean of 4.0000 and standard deviation of 0.63671. The respondents demonstrated there was an element of outsourcing at Unga. According to Arbulu, et al. (2003) outsourcing foster Value stream mapping that help manufacturing companies enhances visualization and apprehension of material flow and information as a product makes its process via the value cycle, enable the company provide and deliver a product, both value-adding and non-value (waste) processes and also contribute to cost reduction along manufacturing processes. The results were as presented in the table 4.4 below.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The organization has saved costs through outsourcing</td>
<td>3.6000</td>
<td>.49320</td>
</tr>
<tr>
<td>The outsourced organization are efficient</td>
<td>4.0000</td>
<td>.63671</td>
</tr>
<tr>
<td>The organization is satisfied with its outsourced services</td>
<td>3.4000</td>
<td>1.20808</td>
</tr>
<tr>
<td>The organization has formal contract with its outsourced partners</td>
<td>4.0000</td>
<td>.00000</td>
</tr>
<tr>
<td>The organization frequently evaluates services from outsourced</td>
<td>3.2000</td>
<td>.98639</td>
</tr>
</tbody>
</table>

N=75

4.2.4 Information Advancement

The respondents were asked to respond on the application of supply chain management in their organization. From the findings, respondents strongly agreed that the company integrated information system has improved supply chain management as shown by a mean of 4.8000 with standard deviation (SD) of 0.40269. Respondents were in agreement that Unga Holdings integrated information system has improved customer relationship management as depicted by a mean of 4.0000 and an SD of 0.90045. The respondents were in unison that Unga Holdings integrated information system has improved supplier relationship as exhibited by a mean of 4.2000 and a standard deviation of 0.75337. The results indicated respondents agreed that the organization has an integrated information system as indicated by a mean of 3.8000 with a standard deviation...
of 1.47959. Further results showed respondents were neutral that the integrated information system has improved organization performance by a mean of 3.4000 with a standard deviation of 1.36560. The findings did not align with Jiangtao Yibin and Mingxia (2018) that information system significantly influence organizational performance in Chinese manufacturing companies.

The results were as presented in Table 4.5 below.

**Table 4.5 Information Advancement**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The organization has an integrated information system</td>
<td>3.8000</td>
<td>1.47959</td>
</tr>
<tr>
<td>The integrated information system has improved supply chain management</td>
<td>4.8000</td>
<td>.40269</td>
</tr>
<tr>
<td>The integrated information system has improved organization performance</td>
<td>3.4000</td>
<td>1.36560</td>
</tr>
<tr>
<td>Integrated information system has improved customer relationship management</td>
<td>4.0000</td>
<td>.90045</td>
</tr>
<tr>
<td>Integrated information system has improved supplier relationship</td>
<td>4.2000</td>
<td>.75337</td>
</tr>
</tbody>
</table>

N=75

**4.2.5 Supply Chain Performance**

The study sought extent the respondents agreed regarding achievement of Unga Holdings performance due to deployment of supply chain practices. From the results, respondents strongly agreed that embracing supply chain practices resulted into a highly reliable supply chain as indicated by a mean of 4.8000 with a standard deviation of 3.35309. Respondent agreed that embracing supply chain practices led to operational costs being within planned levels as indicated by a mean of 3.8000 with a standard deviation of 0.98639. Respondents also agreed that embracing supply chain practices resulted into a highly flexible supply chain as indicated by a mean of 4.0000 and standard deviation of 0.63671. Also, respondents strongly agreed that adoption of supply chain practices contributed to a flexible supply chain of Unga holding limited as indicated by a mean of 4.4000 with a standard deviation of 0.80539. Further, respondents agreed that deployment of supply chain practices lead to timely customer deliveries as indicated by a mean of 3.6000 supported by a standard deviation of 0.49320. This demonstrated that adoption of supply chain practices would have a contribution to improvement in organization performance in flour milling companies in Kenya. According to Macharia (2014), supply chain management as an essential technique in enabling firms reduce operational waste and improve performance. The results were presented in Table 4.6

**Table 4.6 Supply Chain Performance**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>We have a highly reliable supply chain</td>
<td>4.0000</td>
<td>.63671</td>
</tr>
<tr>
<td>We have a flexible supply chain to meet our customer needs</td>
<td>4.8000</td>
<td>3.35309</td>
</tr>
<tr>
<td>We have a supply chain that is responsive to customer needs</td>
<td>4.4000</td>
<td>.80539</td>
</tr>
<tr>
<td>Our operational costs are within planned levels</td>
<td>3.8000</td>
<td>.98639</td>
</tr>
<tr>
<td>We deliver to our customers on time</td>
<td>3.6000</td>
<td>.49320</td>
</tr>
</tbody>
</table>

N=75

**4.3 Univariate Regression Analysis**

This section provides univariate regression results on the relationship between Green Supply Chain, Supplier Management Outsourcing and Performance of large scale flour processing firms in Kenya. The section further presents the findings on the moderating effect of Information advancement on the relationship between Supply Chain Management and performance of the organisations.
4.3.1 Effect of Green Supply Chain on Performance of large scale flour processing firms in Kenya

The regressions results are presented in Table 4.16. The model summary results indicate that separately, Green Supply Chain explains 56.5% ($R^2 = .565$) of the total variations in the Performance of large scale flour processing firms. The ANOVA results reveal an F statistic of 259.921 and reported P value of 0.000. The $P$ value being less than the alpha value ($P < .05$), the proposed model is therefore statistically significant (good fit) in predicting the dependent variable.

Further, the regression of coefficient findings indicate that Green Supply Chain had a positive and significant effect on operational performance ($\beta = 0.602 \ P < .000$). This implied that a change in Green Supply Chain by one unit would result to change in Performance of large scale flour processing firms by 0.602 units. The findings are consistent with those of Ambe (2012) who established that Green Supply Chain was significant in influencing firm performance. Similarly, studies such as (Bakkappa, Metri & Sahay, 2009; Purvis, 2010; Sendil, 2015; Tarafdar & Qrunfleh, 2017; Bakkappa, Metri & Sahay, 2009) concluded that Green Supply Chain was a significant determinant of firm performance.

Model:

$$\text{Organisation Performance} = 0.934 + 0.602 \text{Green Supply Chain}$$

Table 4.16: Regression Model: Green Supply Chain and Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>.934</td>
</tr>
<tr>
<td></td>
<td>X1</td>
<td>.602</td>
</tr>
<tr>
<td></td>
<td>R Squared</td>
<td>.565</td>
</tr>
<tr>
<td></td>
<td>Adjusted R Squared</td>
<td>.563</td>
</tr>
<tr>
<td></td>
<td>F statistic</td>
<td>259.921</td>
</tr>
<tr>
<td></td>
<td>P value</td>
<td>.000</td>
</tr>
</tbody>
</table>

Following the introduction of moderating variable (Information advancement); the results in 19 indicate that Green Supply Chain when interacted with Information advancement explains 69% of the total variations in Performance of large scale flour processing firms. A comparison between the R square without moderation and R square with moderation reveals that the R square increased from 56.5% to 69%, implying that Information advancement had a positive moderating effect on the relationship between Green Supply Chain and Performance of large scale flour processing firms. This means that Information advancement significantly increases the effect of Green Supply Chain supply on operational performance.

Model:

$$\text{Operational Performance} = 1.684 + 0.129 \text{Green Supply Chain supply} \times \text{Information advancement}$$

Table 4.17: Regression Model with Moderation

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>1.684</td>
</tr>
<tr>
<td></td>
<td>X1,M</td>
<td>.129</td>
</tr>
<tr>
<td></td>
<td>R Squared</td>
<td>0.692</td>
</tr>
<tr>
<td></td>
<td>Adj. R Squared</td>
<td>0.687</td>
</tr>
<tr>
<td></td>
<td>F statistic</td>
<td>83.703</td>
</tr>
<tr>
<td></td>
<td>P value</td>
<td>0.000</td>
</tr>
</tbody>
</table>
4.3.2 Effect of Supplier Management on Performance of Large Scale Flour Milling Firms

The regressions results are presented in Table 4.18. The model summary results indicate that separately, supplier management explains 63.8% (R²= .638) of the total variations in the Performance of large scale flour processing firms. The ANOVA results reveal an F statistic of 352.857 and reported P value of 0.000. The P value being less than the alpha value (P < .05), the proposed model is therefore statistically significant (good fit) in predicting the dependent variable.

Further, the regression of coefficient findings indicate that supplier management had a positive and significant effect on performance (β=0.675 P < .000). This implied that a change in supplier management by one unit would result to change in large scale flour milling firms by 0.675 units. The study supported Birhanu, Lanka and Rao (2014) findings that adoption of Facility supplier management enhances competitiveness of businesses.

Model:

\[ \text{Firm Performance} = 0.816 + 0.675 \text{ supplier management} \]

Table 4.18: Regression Model: Supplier Management and Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>.816</td>
</tr>
<tr>
<td></td>
<td>X2</td>
<td>.675</td>
</tr>
</tbody>
</table>

R Squared = .638

Following the introduction of moderating variable (Information advancement); the results in table 4.19 indicate that Supplier Management when interacted with Information advancement explains 74% of the total variations in Performance of large scale flour processing firms. A comparison between the R square without moderation and R square with moderation reveal that the R square increased from 64% to 77%, implying that Information advancement had a positive moderating effect on the relationship between Supplier Management and performance of large scale flour processing firms. This means that Information advancement significantly increases the effect of Supplier Management on performance.

Model:

\[ \text{Firm Performance} = 1.629 + 0.145 \text{ Supplier Management} \times \text{Information advancement} \]

Table 4.19: Regression Model with Moderation

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td></td>
<td>(Constant)</td>
<td>1.629</td>
</tr>
<tr>
<td></td>
<td>X²M</td>
<td>.145</td>
</tr>
</tbody>
</table>

R Square = 0.771

4.3.3 Effect of Outsourcing on Performance of Large Scale Flour Processing Firms

The regressions results are presented in Table 4.20. The model summary results indicate that separately, Outsourcing explains 56.4% (R²= .564) of the total variations in the performance of large scale flour processing firms. The ANOVA results reveal an F statistic of 258.594 and reported P value of 0.000. The P value being less than the alpha value (P < .05), the proposed model is therefore statistically significant (good fit) in predicting the dependent variable.
Further, the regression of coefficient findings indicate that Outsourcing had a positive and significant effect on operational performance ($\beta=0.562 \ P < .000$). This implied that a change in Outsourcing by one unit would result to a change in performance of large scale flour processing firms by 0.562 units. The study findings were consistent with Nyaoga, Magutu and Aduda (2015) assertion that outsourcing significantly influenced firm performance. Świerczek (2010) also found that Outsourcing strategies influenced performance in supply chain. Further, Boone, Craighead and Hanna (2017) revealed a significant increase in the number of Outsourcing research efforts, many of which at least partially addressed past challenges noted in previous research.

Model:

$$\text{Firm Performance} = 1.044 + 0.562 \text{Outsourcing}$$

Table 4.20: Regression Model: Outsourcing and Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>1.044</td>
</tr>
<tr>
<td>X3</td>
<td>.572</td>
<td>.036</td>
</tr>
<tr>
<td>R Squared</td>
<td>.564</td>
<td></td>
</tr>
<tr>
<td>Adjusted R Squared</td>
<td>.562</td>
<td></td>
</tr>
<tr>
<td>F statistic</td>
<td>258.594</td>
<td></td>
</tr>
<tr>
<td>P value</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

Following the introduction of moderating variable (Information advancement); the results in table 4.21 indicate that Outsourcing when interacted with Information advancement explains 80% of the total variations in performance of large scale flour processing firms. A comparison between the R square without moderation and R square with moderation reveal that the R square increased from 56.4% to 80%, implying that Information advancement had a positive moderating effect on the relationship between Outsourcing and performance of large scale flour processing firms. This means that Information advancement significantly increase the effect of Outsourcing on performance.

Model:

$$\text{Operational Performance} = 1.710 + 0.128 \text{Outsourcing*Information advancement}$$

Table 4.21: Regression Model with Moderation

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.710</td>
<td>.075</td>
</tr>
<tr>
<td>X3.M</td>
<td>.128</td>
<td>.014</td>
</tr>
<tr>
<td>R Square</td>
<td>.826</td>
<td></td>
</tr>
<tr>
<td>Adj. R Square</td>
<td>.821</td>
<td></td>
</tr>
<tr>
<td>F statistic</td>
<td>85.049</td>
<td></td>
</tr>
<tr>
<td>P value</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

4.3.4 Multiple Regression without Moderation Results

Results presented in table 4.22 on model summary indicates the influence of predictor variables on dependent variable after running regression analysis step wise. Model one indicated the influence of green supply chain, supplier management and outsourcing on performance of large scale flour processing firms.
coefficient of determination ($R^2$) was 44.9 % which means 44.9 % of the variation of the dependent variable (Performance of large scale flour processing firms ) can be explained by the independent variables (green supply chain, supplier management and outsourcing). Second step multiple linear regression analysis involved addition of the effect of interaction between Green supply chain and information advancement variable (Model 2; Table 4.22). This improved the coefficient of determination by 0.003 ($R^2$ change) to make it stand at 45.3 %. However, the $R^2$ was not significant ($p > 0.05$). Third step multiple linear regression analysis involved addition of effect of interaction of supplier management and information advancement (Model 3; Table 4.9). Consequently, the $R^2$ improved by 0.07 ($R^2$ change) to make it 52.3% which was significant ($p<0.05$). In the fourth and final step of multiple linear regression analysis, the effect of interaction of outsourcing and information advancement was added. This improved the $R^2$ value by 0.094 ($R^2$ change) to make it stand at 61.7% which was highly significant ($p<0.05$). This implied that all the independent variables in the study namely, green supply chain, supplier management, outsourcing with information advancement significantly explained the variation of dependent variable (performance of large scale flour processing firms ) by 61.7%. The results are in agreement with the findings of Dangayach and Deshmukh (2001) and Lindskog (2012) who postulated that efficient management of resources such as green supply chain capabilities, suppliers and outsourcing partners improves the firm’s performance. Similar studies by Ekwall and Rolandson (2012) indicated that the overall supply chain management components such as suppliers, information and facilities is key in overall performance of the organization.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the Findings
This section summarizes the findings obtained in chapter four in line with the study objectives.
The overall objective of this study was to investigate the moderating effect of Information advancement on Supply Chain Management and Performance of large scale flour processing firms. The study particularly sought to determine the moderating effect of Information advancement on Green Supply Chain and Performance of large scale flour processing firms, to establish the moderating effect of Information advancement on Supplier Management and Performance of large scale flour processing firms, to determine the moderating effect of Information advancement on outsourcing and performance of large scale flour processing firms.

5.1.1 Green Supply Chain
The first objective of the study was to examine the moderating effect of Information advancement on the relationship between Green Supply Chain and Performance of large scale flour processing firms. Based on the descriptive findings, majority of the respondents observed that the firm had embraced returnable containers, waste management, reverse logistics, architecture design that promotes natural light and energy efficient equipments.
The correlation results indicated that Green Supply Chain had a strong positive and significant association with Performance of large scale flour processing firms. The regression results revealed that separately and when combined with other strategies, Green Supply Chain has a positive and statistically significant effect on Performance of large scale flour processing firms. Further, results revealed that Information advancement had a positive moderating effect on the relationship between Green Supply Chain and Performance of large scale flour processing firms in Kenya. Information advancement significantly increases the effect of Green Supply Chain on operational performance. Based on the regression results, the null hypothesis that Information advancement does not moderate the relationship between Green Supply Chain and Performance of large scale flour processing firms was rejected.

5.1.2 Supplier Management
The second objective of the study was to establish the moderating effect of Information advancement on the relationship between Supplier Management and performance of large scale flour processing firms. Based on the descriptive findings, majority of the respondents noted that large scale flour processing firms have adopted Supplier Management. In particular, the firm had embraced long term contracts with suppliers, trains, rewards and involves suppliers in product development.
The correlation results indicated that Supplier Management had a strong positive and significant association with Performance of large scale flour processing firms in Kenya. The regression results revealed that separately and when combined with other strategies, Supplier Management had a positive and statistically significant effect on Performance of large scale flour processing firms. Further, findings indicated that Information advancement had a positive moderating effect on the relationship between Supplier Management and performance of large scale flour processing firms. Information advancement significantly increase the effect of Supplier Management on firm performance. Based on the regression results, the null hypothesis that Information advancement does not moderate the relationship between Supplier Management and performance of large scale flour processing firms in Kenya was rejected.

5.1.3 Outsourcing
The third objective of the study was to determine the moderating effect of Information advancement on the relationship between outsourcing and Performance of large scale flour processing firms. Based on the descriptive findings, majority of the respondents cited that large scale flour processing firms have adopted outsourcing. The particular strategies include having formal contracts with external partners, supplier appraisal so as to achieve efficiency and cost savings. The correlation results indicated that outsourcing had a strong positive and significant association with Performance of large scale flour processing firms in Kenya. The regression results revealed that separately and when combined with other strategies, outsourcing had a positive and statistically significant effect on operational performance of value chains. Further, findings showed that Information advancement had a positive moderating effect on the relationship between outsourcing and performance of large scale flour processing firms in Kenya. Information advancement significantly increases the effect of outsourcing on firm performance. Based on the regression results, the null hypothesis that information advancement does not moderate the relationship between outsourcing and performance of large scale flour processing firms in Kenya was rejected.

5.1.4 Information Advancement
The fifth objective of the study was to determine the moderating effect of information advancement on the relationship between Green Supply Chain, Supplier Management, Outsourcing and Performance of large scale flour processing firms in Kenya. From descriptive results, majority of the respondents noted that large scale flour processing firms experience information advancement adoption of an integrated information system that seeks to improve overall supply chain management, supplier management and customer relationship management. The regression results revealed that information advancement has a significantly positive moderating effect on the relationship between supply chain management and performance of large scale flour processing firms. The null hypothesis that information advancement does not moderate the relationship between supply chain management and performance of large scale flour processing firms was rejected.

5.1.5 Supply Chain Management Practices and Performance of Large Scale Flour Processing Firms
From the multiple regression results, it was evident that all the independent variables (Green supply chain, Supplier Management and Outsourcing) jointly have a positive and significant effect on performance of large-scale flour processing firms in Kenya. The most significant predictor of performance was supplier management followed by Outsourcing and lastly green supply chain.

5.2 Conclusion
Based on the findings for objective one, the study concluded that green supply chain had a positive and statistically significant effect on performance of large scale flour processing firms in Kenya. The study identified waste management policy, integrated information system and partnering with suppliers as key supply chain management elements that can enhance firm performance. The study further concluded that information advancement moderate the relationship between green supply chain and performance of large scale flour processing firms in Kenya. In particular, Information advancement increases the effect of green supply chain on performance.
From the findings for objective two, the study concluded that supplier Management had a positive and statistically significant effect on performance of large scale flour processing firms in Kenya. The study established early involvement of suppliers and information sharing with suppliers as supplier management practices likely to boost performance. The study further concluded that information advancement moderate the relationship between Supplier management and performance of large scale flour processing firms in Kenya. In particular, Information advancement promotes the effect of Supplier Management on operational performance.

In reference to the findings for objective three, the study concluded that Outsourcing had a positive and statistically significant effect on performance of large scale flour processing firms in Kenya. The study established formal contracts and appraisal of suppliers as critical strategies expected to improve performance. The study further concluded that information advancement moderate the relationship between outsourcing and performance of large scale flour processing firms in Kenya. In particular, information advancement increases the effect of outsourcing on operational performance.

In line with the findings for fourth objective, the study concluded that information advancement had a significantly positive moderating effect on relationship between supply chain management and performance of large scale flour processing firms in Kenya. The study established those information advancement related to adoption of integrated information system as key to increase the overall effect of supply chain management on performance of large scale flour processing firms in Kenya.

5.3 Recommendations

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

5.3.1 Green Supply Chain

The study established that Green Supply Chain had a positive and significant effect on performance of large scale flour processing firms in Kenya. The study recommends that flour processing firms in Kenya should fully embrace supply chain management notably; green supply chain, supplier management and outsourcing as well as an enabling information management system. This can be achieved by embracing green supply chain practices; waste management, efficient energy equipments use of natural light where possible.

5.3.2 Supplier Management

The study established that supplier management had a positive and significant effect on performance of large scale flour processing firms in Kenya. The study recommends that large scale flour processing firms should improve on supplier relation practices since they affect the overall performance of the organisation. This can be done by engaging suppliers in product development, sharing more information with suppliers to win their commitment and rewarding best performing suppliers so as to motivate them.

5.3.3 Outsourcing

The study established that outsourcing had a positive and significant effect on performance of large scale flour processing firms in Kenya. The study recommends that the firms should seek cost savings, efficiency as well as sustainability when outsourcing services. This can be achieved by evaluating supplier performance and having formal contracts with service providers.

5.3.4 Information Advancement

The findings established those Information advancement had a significantly positive moderating effect on the relationship between Green Supply Chain, Supplier Management Outsourcing and performance of large scale flour processing firms in Kenya. This study therefore recommends that large scale flour processing firms should regularly review their information advancement strategies so as to improve on their performance.

5.3.5 Contribution to Theory, Policy and Practice

This study is expected to make significant contribution to theory, policy and practice in the field of supply chain management. On theory, the study builds to the body of knowledge on the relationship between relationship supply chain management and performance of large scale flour processing firms as moderated by information advancement. Further, the study affirms the theoretical framework, and strengthens the various theories used to underpin the variables.
On policy, the study guides policy makers such as the government of Kenya and management of large scale flour processing firms on what to improve in the supply chain management policies and regulations. In particular, the focus should be on Supplier management, green supply chain and outsourcing in that order. On practice, the study informs management of large scale flour processing firms on how best to enhance organizational performance using supply chain management factoring in information advancement.

5.4 Areas for Further Research

The study sought to establish the moderating effect of Information advancement on the relationship between Supply Chain Management and performance of large scale flour processing firms in Kenya. Future studies could focus on Supply Chain Management and performance in other sectors such as agriculture, transportation, shipping, manufacturing etc. In addition, the study focused on three Supply Chain Management practices (green supply chain, supplier management and Outsourcing), which accounted for 73% of variations in the dependent variable. Future studies could consider other supply chain management aspects. The study focused on information advancement as the moderator, future studies can consider other moderators such dynamic capabilities, industry legal framework, government regulations, level of competition etc.

References


