

**SUSTAINABLE SUPPLY CHAIN MANAGEMENT AND  
COMPETITIVE ADVANTAGE FOR MANUFACTURING COMPANIES  
IN MOGADISHU, SOMALIA**

**BY**

**ABDIRAZAK OSMAN MOHAMUD GELE**

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## **DECLARATION**

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Abdirazak Osman Mohamud Gele**

**D67/6247/2017**

This research project has been submitted for examination on approval as the University Supervisors.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**MICHAEL K. CHIRCHIR,**

**Lecturer, Department of Management Science,**

**School of Business, University of Nairobi**

## **DEDICATION**

I would like to dedicate this project to my brothers, Mohamed and Abdulkadir, for their moral and financial support throughout my studies.

## **AKNOWLEDGEMENT**

First of all, I would like to thank Allah for everything I have achieved in life and for enabling me to go through this process smoothly.

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## **ABBREVIATIONS AND ACRONYMS**

**FMCGs:** Fast Moving Consumer Goods

**GDP:** Gross Domestic Product

**SCM:** Supply Chain Management

**SSCF:** Sustainable Supply Chain Foundation

**SSCMPs:** Sustainable Supply Chain Management Practice

**UNDG:** United nation development goals

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## ABSTRACT

Manufacturing companies in Mogadishu are facing considerable challenges from customers, and they are forced to adopt SSC. Customers are becoming aware of the social and environmental problems caused by manufacturing companies using traditional supply chain management, which does not concentrate on social and environmental aspects, so manufacturing companies are finding it difficult to effectively and efficiently respond to customer needs with their traditional supply chain network. The study sought to determine the effect of sustainable supply chain management and competitive advantage for manufacturing companies in Mogadishu, Somalia. The study was guided by the following specific objectives; to examine the extent to which SSCMP are implemented by manufacturing companies in Mogadishu; to determine the relationship between SSCMP and competitive advantage for manufacturing companies in Mogadishu and to establish barriers faced by manufacturing companies of Mogadishu in implementing SSCMP. The study adopted a descriptive design targeting 33 manufacturing firms in Mogadishu Somalia. A census was used and thus the sample size was 33 firms and respondents covered the supply chain officers, procurement officers, and logistic officers. Primary data was collected with the help of questionnaires and the analysis was done using means, standard deviations and regression analysis. The study found out that Supplier integration and collaborations in SSCM are the significant components of SSCM followed by reverse logistics and lastly green manufacturing. Supplier integration, green manufacturing, collaboration in SSCM and reverse logistics all have positive and significant relationship with competitive advantage. The barriers in implementation of SSCM include limited budgets and the fact that it requires investment in sophisticated technologies and specific skills sets. The study recommends that all manufacturing firms in Mogadishu, Somalia should give more focus on supplier integration and collaborations in SSCM since they are significant components of SSCM. Since SSCM has positive relationship with competitive advantage, the study recommends that all manufacturing firms should invest in supplier integration; collaborations reverse logistics and green manufacturing. Manufacturing firms should allocate more funds towards SSCM for competitive advantage. This study was limited to manufacturing firms, this is a limitation because it would be hard to generalize the findings to other sectors for instance the service sector which differs from the manufacturing sector in terms of scope. Additionally, the study was limited to only manufacturing firms in Mogadishu, Somalia. It would therefore be hard to replicate the same findings in other contexts like Kenya since the operating environment is not same. Future studies should cover similar studies in more than one country for comparative purpose. In the current study, SSCM was investigated in relation to competitive advantage, future studies should be done focusing on other aspects like organizational performance.

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

The emphasis on managing processes has changed over the past two decades from a particular organizational level to the entire supply chain level. Through managing the various sets of activities involved in the process of manufacturing goods or services, the highest value can be obtained using the minimum cost of production (Nichols & Handfield, 2014). Supply chain management activities extend from acquiring the necessary raw materials from suppliers, transforming them into output, and then delivering to customers. The main focus of Supply chain management is to improve the overall performance of an institution or rather an organization. It also ensures that a company enhances its productivity and profitability to gain sustained competitiveness (Gunasekara, 2012).

In the area of supply chain management, sustainability as a term has gained significant attention. And SCM's emphasis is related to the wider adoption and growth of the sustainability theory (Jayarama, Klassen & Linton, 2007). Sustainability also considers all the flows and issues extending beyond the key areas in an organization's supply chain management, and it has been recognized to a way of achieving a competitive advantage where the focus has moved away from a cost or differentiation strategies (Muller & Seuring, 2008). Organizations use sustainable supply chain as one of their strategic tools in strengthening competitiveness relative to competitors, It is also justified on the basis of reduction in waste and optimizing resource utilization to gain a competitive edge (Wamalwa, 2014).

Theories describing the practical existence of companies adopting efficient supply chain management and competitive advantage include the concept of organizational thinking and adaptive capability (Touboulic & Walker, 2015). The concept of adaptive capabilities takes the view that SSCM is a tool that can provide a competitive advantage to organizations (Sarkis, Zhu & Lai, 2011). This theory suggests that businesses often reconfigure and realign their unique competences in the event of environmental changes and turbulences in which companies operate. This realignment of the company's capabilities to environmental changes results in the company's competitive advantage. The organizational theory explicitly outlines the effect of structural forces on organizations to follow SSCM practices (Ochieng, 2016).

The manufacturing sector plays to economic growth of Somalia by contributing about 10% to Gross Domestic Product. In spite of this, most manufacturing companies in Somalia, particularly in Mogadishu have faced challenges arising from civil war especially one experienced in 1991 that resulted into failure and collapse of the Somalia state. Most of the manufacturing firms in Mogadishu completely collapsed and thus are now emerging (Lin & Tseng, 2016). Presently, the manufacturing sector in Mogadishu is promising as many new firms are emerging everyday thus intensifying the level of competition. The key challenge with this influx of new firms in the manufacturing sector of Somalia is overutilization of the limited resources with little efforts to safeguard then environment (Dubey, Gunasekaran, Papadopoulos, Childe, Shihin & Wamba, 2017). Therefore, to gain competitive advantage in such a sector characterized by persistent entry of new firms. The need for the current study is supported by the need for efficient supply chain management.

### **1.1.1 Sustainable Supply Chain Management**

Sustainability is mostly viewed in terms of the Triple Bottom-line (social, economic, and environmental). The SCM theory was first considered before this study focused on issues such as the green supply chain. Muller and Seuring (2008) view sustainable supply chain management (SSCM) as an organization's ability to effectively control the flow of resources, materials and data, in addition to maintaining good relations with other supply chain organizations, while stressing social issues, economic and environmental aspects in their operations. According to the Sustainable Supply Chain Foundation (SSCF), SSCM is the incorporation of sustainable financial and environmental practices into the entire supply chain management from the moment the products are designed and produced through to the final disposal process. The According to the Sustainable Supply Chain Foundation (SSCF), from the moment the products are designed and generated through to the final disposal process, SSCM integrates sustainable financial and environmental practices into the overall supply chain management (World Commission on Environment & Development,1987).

Sustainability as a concept has gained a lot of relevance among-policy makers and academicians. According to the UNDP, the 2030 agenda for sustainable development goals (2015) provides a shared blueprint for peace and prosperity for people and planet, now and into the future. At its heart are the 17 sustainable development goals (SDG), which are an argent call for action by all countries developed and developing in global partnership. They agree that ending poverty and other deprivations must go hand in hand with policies to improve health and education, reduce inequality, and stimulate economic growth, while addressing climate change and striving to protect our oceans and forests.

Sustainability can be measured from three aspects; the economic, social and environmental (Flanigan&Schulz, 2016). The economic aspect is about creation of strategic market advantages by ensuring the efficiency production of quality products for customers. The social aspect relates to understanding and improving the ways business operations affect the people positively or negatively. Many organizations rely on the environmental aspect of sustainability to improve on corporate image, reduce costs and gaining a competitive edge. The purchasing behavior of customers today is informed by the environmental and ethical considerations of the firm (Trudel&Cotte, 2009).Achieving sustainability however calls for joint efforts and cooperation between firms and all stakeholders (Flanigan&Schulz, 2016).

### **1.1.2 Competitive Advantage**

Competitive advantage is concerned with organization's value chain of the activities and can be achieved through cost reduction and differentiation. Competitive advantage focuses on the activities performed by an organization and how they relate each other to deliver a unique value to customers. Organizations ' ability to create a unique value that exceeds their business costs is where the competitive advantage comes from, and companies may create and maintain competitive advantages through cost leadership or differentiation approaches (Porter, 1985).

In order for a company to gain a competitive advantage, it must have unique capabilities that separate it from other market participants and also help the company to offer specific consumer value. Competitive advantage can be obtained through cost leadership, differentiation, and focus approach. Cost leadership is about being the lowest price while at the same time providing high-quality products. Differentiation is concerned with the capability of providing unique products and services to customers while competitors are not

able to imitate (Gebauer, Gustafsson & Witell, 2011). Focus approach enables the organization to concentrate on a narrow or broad way of pursuing the strategy (Porter, 1985). Competitive advantage can be obtained through unique sustainability-related competences in supply chains, which reflects a classic view of business performance and power (Touboulic & Walker, 2015).

Sustainable Supply Chain Management helps a firm to offer quality products to its customers which creates competitive advantage. SSCM helps an organization to manage and control the manner in which materials and information flow which helps firms to remain competitive in an increasingly turbulent business environment (Barney, 2012). Through SSCM, firms are better placed to respond to environmental challenges and problems for instance pollution and this goes a long way to improving reputation of the firm hence making it to be competitive. It is also through SSCM that an organization is able to collaborate and form linkages with its suppliers and customers by jointly making decisions on product quality which increase synergy thus making the firm to be competitive (Genovese, Acquaye, Figueroa & Koh, 2017).

Competitive advantage is about a firm's capability to create a position that is unattainable to its competitors (McGinnis, 1999). According to Lyson and Farrington (2006) explain competitive advantage as a unique superiority that allows an organization to have superior power than their competitors (Lyson & Farrington, 2006). Organizations today are not just seeking to gain competitive advantage, but such an advantage should be sustainable over time (De-Geus, 1988). Competitive advantage forms the basis for attracting and retaining customers, who have a choice in the market. According to Porter sustainable competitive advantage can be realized through operational effectiveness alone. In order to realize sustainable competitive advantage, an organization should be in position to carry out similar operations but in different ways as compared to other industry participants (Porter, 1985).

Organizations need to have sustainable competitive advantage to remain and compete in the competitive market.

### **1.1.3 Manufacturing Companies in Mogadishu**

Manufacturing as a process occurs when components or materials are transformed into consumable products through a system (Levinson, 2018). The inputs that move through a device are continuously converted into finished products that are sold to customers during the manufacturing process. The manufacturing industry plays an important role as far the growth of any economy is concerned. However, the rapid change in technology has resulted into a paradigm shift from product to service economies. In economic terms, however, a stable manufacturing sector is one of the indicators of growing and resilient economy. At the same time, manufacturing industry closely interrelates with all other sectors in any economy.

Before the civil war broke out in 1991, there were 53 publicly-owned small, medium and large manufacturing companies in Mogadishu, Somalia, but the war has left none of them working. The manufacturing sector has gained momentum with Somali Diaspora making investments of small-scale plants. In Mogadishu, there are 33 manufacturing plants, which produce mineral water, plastic bags, foam mattress, and pillows, detergent and soap, aluminum, stone processing, and fishing boats. The Somali manufacturing sector contributes 10% of the Gross Domestic Product (GDP), 2% of formal employment and 0.01% exports (Ministry of Commerce and Industry (2017)). According to the UNDP, investment in bright manufacturing has extended in Mogadishu expressing confidence in the performance of the economy. For instance, a plant worthy \$8.3 million for bottling coca cola products was set in Mogadishu in 2004. Investors are also encouraged to invest in the economy, and the

government encouragement attracted foreign direct investments including Dole Fruits and General Motors.

Sustainable SCM is a recent developed concept, due to a number of barriers, especially in the manufacturing companies in Mogadishu, Somalia. Ghazilla, Sakundarini, Abdul-Rashid, AyubOlugu and Musa (2015) stated that one feature of SSCM is the sharing of information between supply chain partners. Many companies are hesitant to accept SSCM because they are afraid that such information sharing could end up adversely affecting their competitors' competitive advantage. Another barrier in SCMM suggested by Tay, Rahman, Aziz and Sidek (2015) is that there are often competing goals and priorities between supply chain partners resulting in efforts to achieve SSCM. According to Rauer and Kaufmann (2015), the level and degree of trust between the supply chain partners is key for SSCM and therefore any relationship with no trust would not materialize the SSCM efforts in the firm.

## **1.2 Research Problem**

Organizations use effective and efficient supply chain networks to reduce their overall cost of products and by simultaneously producing high-quality products to customers (Surana, Kumara, Greaves& Raghavan, 2005). Nevertheless, the public is increasingly concerned about the impact of industry on the environment and society as a whole, and many industrial companies are forced to accept the adaptation of a sustainable supply chain network, which basically embraces the social, economic and environmental aspects as opposed to the traditional SC network (Marshall, McCarthy, Heavey& McGrath, 2015).

Manufacturing companies in Mogadishu are facing considerable challenges from customers, and they are forced to adopt SSC. Customers are becoming aware of the social and environmental problems caused by manufacturing companies using traditional supply chain



management, which does not concentrate on social and environmental aspects, so manufacturing companies are finding it difficult to effectively and efficiency respond to customer needs with their traditional supply chain network(Genovese, Acquaye, Figueroa &Koh, 2017).

A number of studies on efficient supply chain management and competitive advantage have been performed. Zailani et al. (2012) studied on SSCM in Malaysia and noted that they positively influenced supply chain performance. Moneva and Alvarez (2014) assessed how sustainable supply chain (SSC) influence performance. The study revealed that sustainable SSC influenced the performance of an organization. Flanigan and Schulz (2016) conceptually examined how firms can gain competitive edge by use of the economic, social and economic pillars of sustainability. The study revealed a possibility of developing model that incorporates both social and environmental aspects as an avenue for gaining competitiveness. Muktadir (2017) examined factors limiting the adoption of SSCMPs and revealed that limited knowledge among stakeholders is a key challenge affecting implementation of SCCMPs in organizations today.

Wamalwa (2014) conducted study on how firms in the tea sector can leverage on SCCM to gain competitive advantage. Mulwa (2015) sought to assess how SCCMPs were linked with organizational performance using a case of UN-agencies. It was revealed that SSCMPs significantly influence competitive positioning of firms.Watulo (2017) examined how SCMPs influenced competitive advantage with emphasis to retail stores. The study revealed that SCMPs and competitive advantage were strongly correlated. Ombati, Githii and Mukatia (2018) did a study on SCMPs and how they influence performance with a focus on supply chains of horticultural products. The study established that most of the horticultural firms have incorporated the social, economic and environmental aspects in their operations.

Although the reviewed studies focused on SSCM, some of them were however done in different contexts for instance the UN-Agencies while others looked at different concepts like performance instead of competitive advantage hence resulting into conceptual research gaps. To fill these gaps, this study sought to answer the following research question; what is the effect of sustainable supply chain management and competitive advantage for manufacturing companies in Mogadishu, Somalia?

### **1.3 Research Objectives**

The general and specific objectives of the study are detailed below:

#### **1.3.1 General Objective**

To establish the effect of sustainable supply chain management and competitive advantage for manufacturing companies in Mogadishu, Somalia

#### **1.3.2 Specific Objectives**

The specific objectives of this study were as follows:

- I. To examine the extent to which SSCMP are implemented by manufacturing companies in Mogadishu.
- II. To determine the relationship between SSCMP and competitive advantage for manufacturing companies in Mogadishu
- III. To establish barriers faced by manufacturing companies of Mogadishu in implementing SSCMP.

#### **1.4 Value of the Study**

The study will be useful for other companies in establishing a relationship between SSCM and competitive advantage and could follow the principle of sustainability.

Future scholars will rely on the findings from this study to carry out similar related studies.

This will expand the level of knowledge on SCCM and how they influence competitiveness among firms.

On the policy-makers' aspect the study will be significant to government agencies through establishing guidelines for manufacturing companies to adopt sustainable SSCM that would improve the environment.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter discusses theories on which the thesis will be based. The section looks at responsible supply chain management practices and competitive advantage in addition to the theories. The empirical literature that connects sustainable SCM practices with competitive advantage is also examined. In addition to the conceptual framework connecting independent and dependent variables of the report, the challenges in the adoption of SSCM in manufacturing companies are also examined.

### **2.2 Theoretical Literature Review**

The section reviewed theories that formed part of the study. Institutional theory and the theory of adaptive capability must guide the research. There will be a summary of these hypotheses.

#### **2.2.1 Institutional Theory**

This theory was formulated by Hirsch (1975) to explain how external pressure influences the operations of the firm. There are three external pressures (DiMaggio & Powell, 1983) that may have an influence on operations of the firm. According to this theory, these pressures include normative, mimetic and coercive. These pressures emanate because firms operate in social networks of institutions. Coercive pressure emanates from those people in authorities and power for example the government. With mimetic pressure, an organization strives to copy or mimic the actions and activities undertaken by successful firms in an industry. This is one of the key drivers of responsible SCM practices for businesses (Taylor & Christmann,

2001). Normative pressure, on the other hand, emanate from external parties with a stake in the company (Sarkis& Zhu, 2007).

Firms that yield to these identified pressures are ones conceived to be legitimate in the society. Therefore, the theory is applicable to the analysis as it describes how society can affect the adoption and implementation of SSCM practices. It is the institutional pressure, which influences the adoption and implementation of SSCMP and thus competitive advantage.

### **2.2.2 Dynamic Capability Theory**

The theory was originally formed by Teece, Pisano and Shuen in (1997) who stated that the company's ability to merge, reconfigure, refresh and rebuild assets and skills to meet the ever-changing and volatile business environment. Through aligning the company's strategies, resources and skills with the environmental changes, an enterprise is better positioned to achieve competitive advantage over other players in the same operating sector. Therefore, by altering and reconfiguring their resources, firms are able to gain competitive advantage. Capabilities as per Teece et. al. (1997) is the tool used by an individual to develop a variety of new and untried skills and competences. The new capabilities that have been gained help ensure that the company's different assets are efficiently organized and implemented to achieve competitive edge.

It is the limitations of the Resource Based View theory that gave rise to emergence of the dynamic capability theory since the changes in environment that firms operate in were completely ignored under the RBV theory (Butler & Priem, 2001). Thus, the desire for application of RBV within the ever changing and turbulent business environment resulted into the Dynamic Capability Theory. Capability according to Teece (2014) is the firm's

capacity to utilize the resources in place for undertaking of specific tasks and activities within the constantly changing business environment that firms operate in.

There are key assumptions that form the basis of this dynamic capability theory. First, it is assumed that firms will always realign and reconfigure their resources in the event of the changes in the environment. It is also believed that companies with higher capacity will be better positioned to perform better than those with lower competitive capacity. For businesses to thrive in an ever-changing and volatile world, these companies should always reconfigure and maintain their competitive advantage (Teece, 2007). It is not possible to develop and move the company's diverse capabilities as they are implicit in nature and are therefore deeply rooted in the company's relationships and history, forming the foundation for the company's competitive advantage. This theory is applicable to the study as it describes how businesses can achieve competitive advantage in response to the changing environment in which they work.

### **2.3 Sustainable Supply Chain Management Practices**

Integration of suppliers is collaboration between suppliers and the company. Today, most companies pay a great deal of attention to the customer relationship and thus ignore suppliers. Supplier integration according to Chartered Institute of Purchasing and Supply (2014) is the cooperation between an organization and its suppliers on a mutual basis. Many concepts have been used to define the convergence of vendors, including alliances, collaborations, cooperative arrangements and boundary less organizations. Integration is the foundation on which to construct an effective supply chain. Clear and close relations with suppliers allow supply chain members to improve quality by reducing costs and meeting or exceeding customer demand. Integration in a supply chain means not only linking companies with their

suppliers, but also connecting companies through supply chains. Supplier partnerships are part of these relationships in the supply chain. In any partnership, a minimum of two parties are required for mutual exchange and benefits. Successful supplier relationships are based on shared sharing of rewards and risk, whereas each party understands clearly the planned roles and responsibilities with high confidence and commitment and long-term perspectives (Gold &Heikkurinen, 2013).

Green manufacturing brings environmental concerns into the SCM from product design, material choice, product manufacture and distribution to customers and product management throughout its lifespan. As per Hemphill and Kelley (2016), green manufacturing is the collaboration between a manufacturing firm with suppliers to find the best solution in reduction or elimination of the negative effects of operations and products towards the environment. Green manufacturing according to Govindan, Kaliyan, Kannan and Haq (2014), is a framework coordinating the products and their design with their manufacturing, control and arrangement so as to reduce environmental pollution.

Manikanda, Velmurugan and Balaji (2014) defined green manufacturing as the use and conversion of environmentally friendly supply chain inputs into products that can be easily reused and recycled during their useful lives. This would provide more wealth for future generations while preserving the natural resources and thus a healthier and prosperous environment. (Searcy & Ahi, 2013). Several benefits accrue to a firms engaging in green manufacturing ranging from reduction in costs, improved operational efficiencies, increased flexibility, growth in sales and value to customers and improvement of the corporate image that translates into competitive advantage. However, adoption of green initiatives requires heavy initial investments including adoption of sophisticated technologies and training employees to increase their proficiency.

Collaboration in the supply chain occurs when activities between suppliers and buyers are effectively coordinated such that supply chain performance accrues to both parties as seen in cost reduction and optimal use of resources. It occurs when more than two members in the supply chain share information, jointly make decisions and share benefits accruing from an increased profitability. Trust and openness are key elements characterizing supplier collaborations. Through collaboration in the supply chain, members are able to cooperate resulting into improvement in organizational performance through generation of more revenues, reduction of costs, flexibility in operation and meeting demand uncertainties (Serut, 2013).

According to Laosirihongthong, Adebanjo and Tan (2013), collaborations have proved to result into numerous significant benefits resulting into competitive advantage and better performance of the firms through efficient management of costs, improvement in delivery times, better management of resources, management of risks and increased value. Zhu, Sarkis and Lai (2013) note that without proper collaborations in the supply chain, any efforts undertaken to manage material and information flow within the supply chain will be unviable. In the words of Yawar and Seuring (2015), collaborations in the supply chain are multi-dimensional with involvement of parties including external alliances, customers and suppliers working together in the supply chain.

Badenhorst (2013) consider the reverse logistics of waste management and recycling strategies implemented by supply chain firms. In their opinion, some reverse logistics practices include the repair of damaged and defective goods, the use of biodegradable materials during packaging and product reuse and recycling. Reverse logistics refers to the movement of goods and resources from the point of sale to the point where they were



produced with the intention of recovering or creating value or for safe disposal (Badenhorst, 2013).

Three principles are based on reverse logistics; reuse, re-use and replication. For recycling, all completely discarded or partially used goods are obtained from customers and then inserted back into the supply chain without updating or refining. With recycling, any piece of the returned material with value is recovered. The collected used products are disassembled in order to extract useful materials in them. During remanufacturing, products collected from field are assessed after which they are repaired, refurbished or overhauled. Remanufacturing includes replacement of defective parts of the products with new or refurbished parts (Moturi et al, 2013).

## **2.4 Empirical Literature Review**

Arthur (2017) conducted a study on how competitive advantage was impacted by the green supply chain. Retail companies were the subject of the report. Focusing on store managers' tactics to inspire sales force to maintain a competitive role in the retail sector. The analysis purposively picked 4 general managers from Georgia's medium-sized retail distributors. Using questionnaires, data was collected. The study findings showed that sustainable supply chain practices, including the implementation of green initiatives, are crucial for retail companies to achieve competitive advantage. The study was about organizations and not the manufacturing sector, and that creates a gap that the current study seeks to fill.

Yingli and Heshan (2014) carried out a study on how best firms can attain strategic SSCM. The study was done in the cable and wire industry in Sweden. This was an empirical review that aimed at determining the definition of sustainability, how SSCM has been implemented and the link between sustainability and SCM. The study revealed five critical factors for

implementation of sustainable supply chain management and these include the fact that SSCM ought to be seen as strategies with long term orientation, the standard management system should comply with daily activities of the company, there should be increased communication between stakeholders in the supply chain, human rights should be respected at all costs and usage of resources should be controlled to avoid the adverse effect on environment. The study was done in Sweden and not Mogadishu resulting into a contextual gap. To fill this gap, the current study will be done among manufacturing firms in Mogadishu.

In Nigeria's food moving consumer goods manufacturing companies, Ogunlela (2018) A Green Supply Chain Study was conducted as a competitive advantage method. An exploratory model was adopted by the report. In primary data obtained using questionnaires, the analysis depended. FMCG manufacturing companies in Nigeria picked a total of 41 respondents. A large number of respondents concluded from the results that implementing green SCM methods increased efficiency and thus enhanced firms ' competitive advantage. The study further revealed that, unlike other industries, FMCG's manufacturing firms ' green supply chain management practices require close collaborative approach between supply chain stakeholders. In Nigeria, the study was conducted with different contextual factors and environment than Mogadishu. This results in a theoretical void to be filled in for the current study.

In Zimbabwe, Chari and Chiriseri (2014) researched on barriers to sustainable procurement. Specifically, the study examined factor influencing the adoption of sustainable procurement in Zimbabwean context. Questionnaires were used to collect data from 300 employees of the administration and procurement team. The findings of the study showed that most businesses in Zimbabwe did not adopt responsible procurement practices. The study found that

purchasing decisions were guided only by the lowest bid and no attention was given to environmental and social issues. The study findings suggested that inadequate management and technical support were key factors influencing successful procurement adoption. The study was done in Zimbabwe that operates in different context compared to Mogadishu resulting into a contextual gap.

In Kenya, Mulwa (2015) conducted a study on SSCMPs and how they influence performance of United Nations Agencies. The study's aims were to assess the implementation of SSCP, the degree to which these methods were implemented, and the challenges facing the adoption of SSCP. To collect data from participants, a cross-sectional correlation model was adopted. A census of UN agencies in Kenya has been completed. Questionnaires were used in primary data collection. The study revealed that the most adopted SSCP included engagement of stakeholders, diversity in supplier networks, ethical sourcing and safeguarding the health of employees. The study was limited to UN-agencies and thus failed to cover how supply chain management influences competitive advantage among manufacturing companies.

With a focus on food manufacturing companies listed on Nairobi Security Exchange, Okello and Were (2014) conducted a study on how organizational performance was affected by SCMPs. Product development, inventory management, lead time and innovation were the basic objectives of the report. An empirical model of a descriptive survey was used. The survey sample was 90 workers and random sampling was used as the sample size of 76 respondents. The findings examined showed that product development, inventory management, lead time and technology all affected organizational efficiency positively. The study focused on organizational performance and not competitiveness resulting into a conceptual gap. The current study will fill these gaps by linking sustainable supply chain with competitive advantage.

Using a case of Delmonte Ltd in Kenya, Machogu (2014) the determinants of green SCM approaches in companies are investigated. The study's objectives are market structure, interaction policy, training of staff and support of management. A descriptive model has been used. The study focused on Delmonte's 110 employees. For sampling 86 participants, stratified random sampling was used. Using questionnaires, primary data was collected. The data gathered were qualitative as well as quantitative. The examined results suggested that market structure; communication strategy, staff training and management are all promoting the adoption of green SCMP explicitly and significantly. Delmonte Ltd is more of processing than manufacturing company because it involves in processing of fruits into juice. It therefore failed to cover manufacturing companies resulting into a contextual gap.

While focusing on the Kenya's tea industry, Wamalwa (2014) examined how SSCM works as a competitive tactical tool. The study's main goal was to consult on the supply chain approach. A hybrid research methodology led the study. The researcher chose 8 tea companies deliberately. Examined how SSCM works as a competitive tactical tool. The study's specific goal was cooperative supply chain strategy. A mixed research methodology has driven the study. The researcher purposely picked 8 tea firms. Using questionnaires and surveys, primary data was collected. The study found that SSCMP shaved favorably and meaningfully as a tactical weapon

## **2.5 Barriers to Adoption of Sustainable Supply Chain Management Practices**

The implementation of sustainable supply chain management practices (SSCMPs) has been presented with several challenges. The introduction of sustainable supply chain management practices requires investment in advanced technology and specific skill sets, according to Khiewnavawongsa and Schmidt (2013). As such, companies without these would require the

creation of training programs for workers that are again costly. Unable to monitor is another challenge for manufacturing companies to pursue efficient supply chain management. In countries where there are no rules and regulations governing environmental concerns, manufacturing companies would be reluctant to implement these practices. Having clearly stated government rules and regulations result into coercive pressure that forces manufacturing companies to adopt SSCM practices (Ojo, Mbowe&Akinlabi, 2014). Inadequate knowledge and experience is another challenge affecting implementation of SSCMP.

The other challenge in adoption of SSCMPs is the high initial costs (Balaji et al. 2014). Most organizations base their decision to a short term horizon ignoring the long term sustainable advantages that would accrue from execution of sustainable SCM practices. It becomes even more challenging in organizations with limited budgets and prioritization is done on the basis of urgency rather than importance. Some of the initial costs incurred during implementation of SSCM include investment in advanced technologies, hiring, training and monitoring employees and making sure they are motivated (Srivastav& Gaur, 2015).

Inadequate support from the senior and top management team in manufacturing organizations is another challenge facing the implementation of SSCMPs. According to Srivastav and Gaur (2015), top management support is key in implementation of SSCMPs, and it is the responsibility of the top management team to avail sufficient resources in terms of human capital, the technology, promoting effective communication and effectively rewarding and motivating employees to accept SSCMPs in their organizations (Srivastav& Gaur, 2015).

There is also a challenge of limited efforts to effectively coordinate all activities within the SCM. In evaluating supply chain performance, the ecological aspects are frequently not considered. There is also the issue of standards where a number of guidelines need to be

agreed upon by firms engaged in the sustainable supply chain management. Majority of manufacturing firms, however, find this challenging difficult to abide (Mvubu&Naude, 2016).

## 2.6 Summary of Literature Review

The summary of literature review is provided in Table 2.1 below the table has the Scholar, study, methodology, key findings, and research gap.

**Table 2.1: Summary of Literature Review**

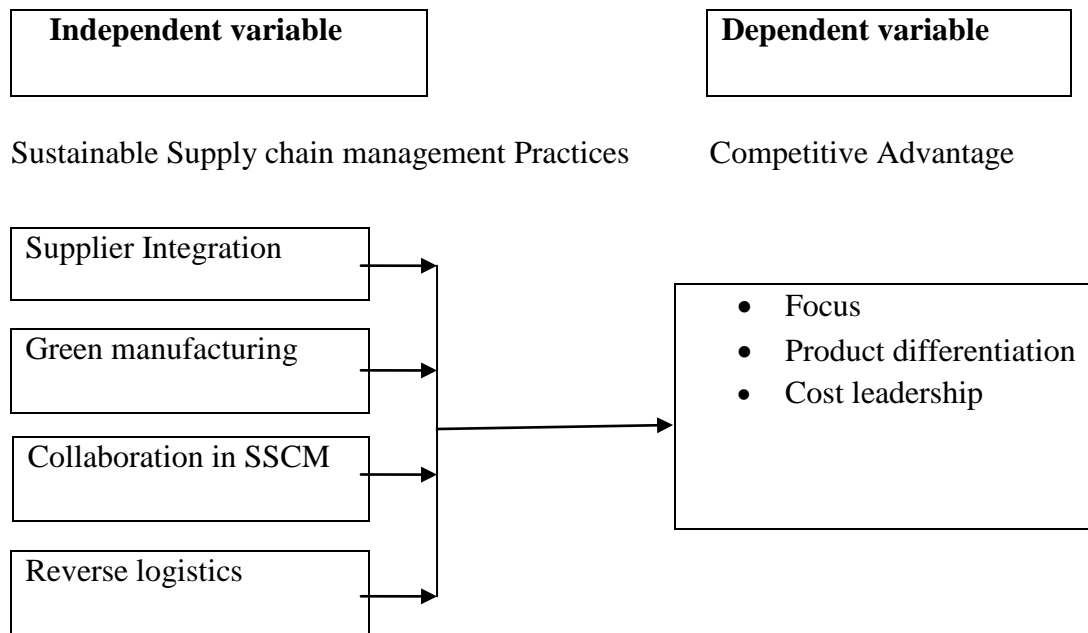
Scholar	Study	Methodology	Key Findings	Research Gaps
Arthur (2017)	How sustainable supply chain affected competitive advantage	The study purposively selected 4 retail managers; Data was collected using questionnaires	For retail companies to gain competitive advantage, sustainable supply chain practices including adoption of green initiatives is paramount	The study focused on retail companies and thus ignored the manufacturing firms resulting into a contextual gap
Yingli and Heshan (2014)	How best firms can firms attain strategic sustainable supply chain management	This was an empirical review	Critical factors for implementation of sustainable supply chain management and these include the fact that sustainable supply chain management ought to be seen as strategies with long term orientation	The study only focused on sustainable supply chain management practices and failed link how they influence competitive advantage thus a conceptual gap for the current study to fill.
Chari and Chiriseri (2014)	Barriers to sustainable procurement	Questionnaires were used to collect data	Most firms in Zimbabwe have not put in sustainable procurement practices	The study was done in Zimbabwe limiting applicability of the findings in Mogadishu's context.
Okello and Were (2014)	How supply chain management practices influenced organizational performance	The study used a descriptive survey design	Product development, inventory management, lead time and technology all positively influenced organizational performance	The study related supply chain management practices with organizational performance and not competitive advantage thus resulting into a conceptual gap for the current study to fill
Wamalwa (2014)	How sustainable supply chain management acts as a strategic tool for gaining competitiveness	Mixed research methodology	As a strategic tool, sustainable supply chain management practices have positive and significant influence on competitive advantage of	The study focused on the tea industry in Kenya which is majorly deals with processing and not manufacturing. This results into contextual gap for the

			firms	current study to fill
Mulwa (2015)	Sustainable supply chain management practices (SSCP) and how they influence performance of United Nations Agencies	Cross sectional correlational design was adopted	The most adopted SSCP included engagement of stakeholders, diversity in supplier networks, ethical sourcing and safeguarding the health of employees	The study focused on UN-agencies and not manufacturing firms resulting into contextual gap. It also failed to link SSCP and competitive advantage but rather performance

**Source: Researcher (2019)**

## 2.7 Conceptual model

Figure 2.1 is the conceptual model the independent variable in this study is SSCM practices which is operationalized into four constructs: supplier integration, green manufacturing, collaboration in SSCM and reverse logistics. The dependent variable is competitive advantage which is operationalized into focus, product differentiation and cost leadership. These are depicted in the conceptual model in figure 2.1 below.



**Figure 2.1: Conceptual model**

**Source: Researcher (2019)**

### **2.7.1 Research Hypotheses**

**H<sub>1</sub>:** Supplier integration has a positive and significant influence on competitive advantage for manufacturing companies in Mogadishu

**H<sub>2</sub>:** Green initiative/manufacturing has a positive and significant influence on competitive advantage for manufacturing companies in Mogadishu

**H<sub>3</sub>:** Collaboration in the supply chain has a positive and significant influence on competitive advantage for manufacturing companies in Mogadishu

**H<sub>4</sub>:** Reverse logistics have a positive and significant influence on competitive advantage for manufacturing companies in Mogadishu.



## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter addresses the study's research nature and target audience, the methods used to collect data, and the techniques used to analyze the data collected.

### **3.2 Research Design**

To achieve the study goals, this analysis used a quantitative approach with a descriptive research design. This allowed the researcher to have first-hand information with optimum control of other variables such as bias data that would conflict with the validity of the findings (Burns, 2003).

### **3.3 Population of the Study**

The target population of this study is the manufacturing companies in Mogadishu, which are 33 in number (Appendix II) as registered the Ministry of Commerce and Industry (2017). To get information from the population, a census was used since the population was not large.

### **3.4 Data Collection**

The research used questionnaires to collect primary data. Primary data was used as it illustrated the study's first-hand source of information. The questionnaire has been divided into four sections: A, section B, section C and section D. The respondents were supply chain officers, procurement officers, logistic officers, and equivalent positions. The study picked on these respondents because they are the ones directly responsible for supply chain issues in an organization. Questionnaires were administered on the basis of the drop and pick latter

method. This ensured that respondents have been given ample time to respond to the research questions without interfering with their busy schedules.

### **3.5 Data Analysis**

Data collected was screened for accuracy, consistency, uniformity, and completeness in preparation for analysis. Data from objective one was analyzed using descriptive statistics, where means and standard deviation will be shown. Similarly, objective two was analyzed using regression analyzes and data for objective three was shown using of descriptive statistics. The regression model for this study is shown below.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where;

Y= Competitive Advantage

X<sub>1</sub>=Supplier Integration

X<sub>2</sub>= Green Manufacturing

X<sub>3</sub>= Collaboration in SSCM

X<sub>4</sub>= Reverse Logistics

$\beta_0$  = constant;  $\beta_1$   $\beta_2$   $\beta_3$   $\beta_4$  are the coefficients of the independent variables. X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub>, respectively and e is the error term.

**Table 3.1: Summary of Methodology**

<b>Objective</b>	<b>Literature Review</b>	<b>Methodology</b>
To examine the extent to which SSCMP are implemented by manufacturing companies in Mogadishu.	( <u>Ng'ang'a</u> , 2014; <u>Gold &amp;Heikkurinen</u> , 2013; <u>Hemphill &amp;Kelley</u> , 2016; <u>Govindan, Kaliyan, Kannan &amp; Haq</u> , 2014; <u>Manikanda, Velmurugan &amp; Balaji</u> , 2014; <u>Searcy &amp; Ahi</u> , 2013; <u>Serut</u> , 2013; <u>Laosirihongthong, Adebajo &amp; Tan</u> , 2013; <u>Yawar &amp; Seuring</u> , 2015; <u>Badenhorst</u> , 2013& <u>Moturi et al</u> , 2013)	Descriptive statistics including means and standard deviations used for analysis
To determine the relationship between SSCMP and competitive advantage for manufacturing companies in Mogadishu	( <u>Arthur</u> , 2017; <u>Yingli &amp; Heshan</u> , 2014; <u>Ogunlela</u> , 2018; <u>Chari &amp; Chiriseri</u> , 2014; <u>Mulya</u> , 2015; <u>Okello &amp; Were</u> , 2014; <u>Machogu</u> , 2014& <u>Wamalwa</u> , 2014)	Regression analysis was used including ANOVA, F-test and t-test
To establish barriers faced by manufacturing companies of Mogadishu in implementing SSCMP.	( <u>Khiewnavawongsa &amp; Schmidt</u> , 2013; <u>Ojo, Mbowa&amp;Akinlabi</u> , 2014; <u>Balaji et al.</u> 2014; <u>Srivastav&amp; Gaur</u> , 2015;& <u>Myubu &amp; Naude</u> , 2016)	Descriptive statistics including means and standard deviations used for analysis

**Source; Author (2019)**

## **CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSION**

### **4.1 Introduction**

This chapter presents the empirical results on the primary data obtained from the field by the researcher. The manufacturing firms in Mogadishu, Somalia used questionnaires to gather information. The data collected were coded into the SPSS Statistical Package for Social Sciences where measures, standard deviations and regression analysis were used for the study. Figures and tables have been used to describe the findings.

#### **4.1.1 Response Rate**

A total of 33 questionnaires were issued to the manufacturing firms in Mogadishu, Somalia. From the questionnaires, 27 of them were completely filled up and returned to the researcher. This is an 82% response rate. This response rate was sufficient and concurred with Yin (2017) that a response of over 70% is sufficient to analyze, present and interpret the findings of the study.

### **4.2 General Information**

The general information of the respondents of the study included their highest level of education, length of service and level of employment.

#### **4.2.1 Highest Level of Education**

The study sought to determine the highest level of education of respondents as shown in Table 4.1.

**Table 4.1: Highest Level of Education**

	<b>Frequency</b>	<b>Percentage</b>
Diploma	6	22.2
Undergraduate	12	44.5
Post graduate	9	33.3
<b>Total</b>	<b>27</b>	<b>100</b>

**Source; Research Data (2019)**

As shown in Table 4.1, most of the respondents 45% were undergraduates, 33% were post graduates while 22% were diploma holders. It indicates that the respondents who participated in the study were literate and were thus able to read and interpret the research questions as the study sought.

#### **4.2.2 Length of Service**

The findings on the number of years worked by respondents in their respective organizations are shown in Table 4.2.

**Table 4.2: Length of Service**

	<b>Frequency</b>	<b>Percentage</b>
Less than 3 years	5	18.5
3-6 years	8	29.6
6-9 years	12	44.4
Over 9 years	2	7.4
<b>Total</b>	<b>27</b>	<b>100</b>

**Source; Research Data (2019)**

From Table 4.2, most of the respondents 44.4% had worked in their respective manufacturing firms for 6-9 years, 29.6% for 3-6 years, 18.5% for less than 3 years and 7.4% for over 9 years. This suggests that the respondents who participated in the study were working for a comparatively longer period of time and were therefore acquainted with the study's findings.

#### **4.2.3 Level of Employment**

The findings on the levels of employment of the respondents are indicated in Table 4.3.

**Table 4.3: Level of Employment**

	<b>Frequency</b>	<b>Percent</b>
Top Management	16	59.3
Middle Management	7	25.9
Operational Staff	4	14.8
<b>Total</b>	<b>27</b>	<b>100.0</b>

**Source; Research Data (2019)**

From the findings in Table 4.3, most of the respondents 59.3% were in top management positions, 25.9% in middle management and 14.8% as operational staff. This shows that most of respondents of the study were in management position which majorly deals with implementation of SSCMPs hence they were knowledgeable.

### **4.3 Extent to Which SSCM Are Implemented By Manufacturing Companies**

The study sought to determine the extent which SSCM practices have been implemented among manufacturing companies in Mogadishu, Somalia. The findings are shown in subsequent sections.

#### **4.3.1 Supplier Integration**

The findings on supplier integration as an aspect of SSCM are indicated in Table 4.4.

**Table 4.4: Supplier Integration**

	<b>Mean</b>	<b>Std. Dev</b>
Overall Score	3.74	0.881

**Source; Research Data (2019)**

As shown in Table 4.4, supplier integration is highly practiced in most of the studied manufacturing firms in Mogadishu Somalia (M=3.74, SD=0.881).

The first objective sought to examine the extent to which SSCMP are implemented by manufacturing companies in Mogadishu. Supplier integration and collaborations in SSCM are the significant components of SSCM followed by reverse logistics and lastly green

manufacturing. O'Brien (2014) indicates that sustainable supply chain management practice incorporates the social, environmental and economic objectives in all the undertaken activities. On supplier integration, most of the studied manufacturing firms mutually share rewards and risks with their suppliers besides cultivating good relationship with their suppliers. The finding is consistent with Gold and Heikkurinen (2013) who argued that successful supplier relationships are based on mutual sharing of rewards and risk, whereas each party clearly understands the expected roles and responsibilities, with high trust and commitment and long term perspectives.

### 4.3.2 Green Manufacturing

Green manufacturing was another SSCM practice that the study focused on as shown in Table 4.3.

**Table 4.5: Green Manufacturing**

	Mean	Std. Dev
Overall Score	3.60	0.947

**Source; Research Data (2019)**

Table 4.3 indicates that green manufacturing is largely embraced by most manufacturing firms in Mogadishu, Somalia (M=3.60, SD=0.947).

In view of green manufacturing, most manufacturing firms in Mogadishu, Somalia collaborate with suppliers to find the best solution in elimination of the negative effects of operations towards the environment. Ogunlela (2018) conducted a study on green supply chain as a tool for competitive advantage and revealed that unlike other sectors, green supply chain management practices in FMCGs manufacturing firms require close collaborative approach between stakeholders in the supply chain. Other manufacturing firms consider environmental issues during the design of products. Green manufacturing according to

Govindan, Kaliyan, Kannan and Haq (2014), is a framework coordinating the products and their design with their manufacturing, control and arrangement so as to reduce environmental pollution.

### 4.3.3 Collaborations in SSCM

The findings on collaboration in the SSCM are shown in Table 4.4.

**Table 4.6: Collaborations in SSCM**

	<b>Mean</b>	<b>Std. Dev</b>
Overall Score	3.74	0.875

**Source; Research Data (2019)**

From Table 4.4, there is a high degree of collaboration in supply chain of most manufacturing firms in Mogadishu, Somalia (M=3.74, SD=0.875).

On the basis of collaborations in SSCM, most of the manufacturing companies in Mogadishu, the activities between suppliers and buyers are effectively coordinated. Collaboration in the supply chain occurs when activities between suppliers and buyers are effectively coordinated such that supply chain performance accrues to both parties as seen in cost reduction and optimal use of resources (Serut, 2013). Collaborations in SSCM help most manufacturing firms to meet demand uncertainties. Through collaboration in the supply chain, members are able to cooperate resulting into improvement in organizational performance through generation of more revenues, reduction of costs, flexibility in operation and meeting demand uncertainties (Serut, 2013).



#### 4.3.4 Reverse Logistics

The findings on reverse logistics and its influence on firm performance are shown in Table 4.7.

**Table 4.7: Reverse Logistics**

	<b>Mean</b>	<b>Std. Dev</b>
Overall Score	3.61	0.999

**Source; Research Data (2019)**

From Table 4.7, most manufacturing firms in Mogadishu Somalia do practice reverse logistics as a sustainable supply chain practice (M=3.61, SD=0.999).

In terms of reverse logistics, there is recycling of materials in most of the studied companies and this helps the company to recover value in returned materials. With recycling, any piece of the returned material with value is recovered. The collected used products are disassembled in order to extract useful materials in them (Moturi et al, 2013)

#### 4.3.5 Ranking of the Extent of SCCM Implementation

Table 4.8 provides the overall ranking of the SSCM.

**Table 4.8: Ranking of the Extent of SCCM Implementation**

<b>SSCM practice</b>	<b>Value of Aggregate Mean</b>	<b>Std. Dev</b>	<b>Rank</b>
Collaborations in SSCM	3.74	0.875	1
Supplier Integration	3.74	0.881	1
Reverse Logistics	3.61	0.999	2
Green Manufacturing	3.60	0.947	3

From Table 4.8, supplier integration and collaborations in SSCM are the significant components of SSCM followed by reverse logistics and lastly green manufacturing.

#### 4.4 Relationship between SSCMP and Competitive Advantage for Manufacturing Companies in Mogadishu

Regression analysis was used to determine the relationship between SSCMP and Competitive Advantage for Manufacturing Companies in Mogadishu. The findings are indicated in subsequent sections.

##### 4.4.1 Regression Coefficients

The beta coefficients and p-values showing significance of the study variables are shown in Table 4.9.

**Table 4. 9 Regression Coefficients**

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.595	1.745		2.633	.001
Supplier integration	.509	.143	.344	3.559	.000
Green Manufacturing	.201	.068	.563	2.956	.000
Collaboration in SSCM	.397	.080	.439	4.963	.000
Reverse Logistics	.215	.035	.376	6.143	.000

a. Dependent Variable: Competitive Advantage

Source; Research Data (2019)

The findings in Table 4.9 can be summarized in the model equation below;

$$Y = 4.595 + 0.509X_1 + 0.201X_2 + 0.397X_3 + 0.215X_4$$

Where;

Y= Competitive Advantage

X<sub>1</sub>=Supplier Integration

X<sub>2</sub>= Green Manufacturing

X<sub>3</sub>= Collaboration in SSCM

X<sub>4</sub>= Reverse Logistics

Act  
Go 1

At 5% level of significance, supplier integration ( $\beta=0.509$ ,  $p<0.05$ ;  $t=3.559>1.96$ ) has positive and significant relationship with competitive advantage. Green manufacturing ( $\beta=0.201$ ,  $p<0.05$ ,  $t=2.956>1.96$ ) has positive and significant relationship with competitive advantage. Collaboration in SSCM ( $\beta=0.397$ ,  $p<0.05$ ,  $t=4.963>1.96$ ) has positive and significant relationship with competitive advantage. Reverse logistics ( $\beta=0.215$ ,  $p<0.05$ ,  $t=6.143>1.96$ ) has positive and significant relationship with competitive advantage.

The second objective sought to determine the relationship between SSCMP and competitive advantage for manufacturing companies in Mogadishu. It was established that supplier integration ( $\beta=0.509$ ,  $p<0.05$ ) has positive and significant relationship with competitive advantage. Green manufacturing ( $\beta=0.201$ ,  $p<0.05$ ) has positive and significant relationship with competitive advantage. Ogunlela (2018) A research on the green supply chain as a competitive advantage method was conducted and showed that the implementation of sustainable SCM practices increased the efficiency and competitive advantage of businesses. Collaboration in SSCM ( $\beta=0.397$ ,  $p<0.05$ ) has positive and significant relationship with competitive advantage. Reverse logistics ( $\beta=0.215$ ,  $p<0.05$ ) has positive and significant relationship with competitive advantage. Wamalwa (2014) assessed how sustainable supply chain management works as a strategic tool for productivity benefit and how SSCMPs have a positive and important impact on the competitive advantage of companies as a strategic tool.

#### **4.4.2 Summary of the Hypotheses Tested**

The study developed and tested four alternative hypotheses as shown in Table 4.13.

**Table 4.10: Summary of the Hypotheses Tested**

Hypotheses	Beta and p=	value	Remark
H <sub>1</sub> : Supplier integration has a positive and significant influence on competitive advantage for manufacturing companies in Mogadishu	$\beta=.509$	& $p<0.05$	Accept the alternative hypothesis
H <sub>2</sub> : Green initiative/manufacturing has a positive and significant influence on competitive advantage for manufacturing companies in Mogadishu	$\beta=.201$	& $p<0.05$	Accept the alternative hypothesis
H <sub>3</sub> : Collaboration in the supply chain has a positive and significant influence on competitive advantage for manufacturing companies in Mogadishu	$\beta=.397$	& $p<0.05$	Accept the alternative hypothesis
H <sub>4</sub> : Reverse logistics have a positive and significant influence on competitive advantage for manufacturing companies in Mogadishu.	$\beta=.215$	& $p<0.05$	Accept the alternative hypothesis

Source; Research Data (2019)

#### 4.4.3 Model Summary

The Model Summary of the study is shown in Table 4.10.

**Table 4.11: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.927 <sup>a</sup>	.859	.834	1.24056

a. Predictors: (Constant), Reverse Logistics, Green Manufacturing, Supplier integration, Collaboration in SSCM

Source; Research Data (2019)

From Table 4.10, it can be inferred that 86% variation in competitive advantage of manufacturing firms can be explained by variations in the four independent variables (Reverse Logistics, Green Manufacturing, Supplier integration, Collaboration in SSCM). This means that the model is a good fit since only 14% of the variance in competitive advantage is unexplained.

#### 4.4.4 Analysis of Variance

An Analysis of Variance (ANOVA) was conducted and the findings are reported in Table 4.11.

**Table 4.12: Analysis of Variance**

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	206.883	4	51.721	33.607	.000 <sup>b</sup>
Residual	33.858	22	1.539		
<b>Total</b>	<b>240.741</b>	<b>26</b>			

a. Dependent Variable: Competitive Advantage

b. Predictors: (Constant), Reverse Logistics, Green Manufacturing, Supplier integration, Collaboration in SSCM

#### Source; Research Data (2019)

From Table 4.11, the value of F calculated is 33.607 as compared to F critical (at degrees of freedom of 4, 22) is 2.82. Thus, since  $F_{\text{calculated}} > F_{\text{critical}}$  it can be inferred that the overall regression model was significant. The p value  $p=0.000$  which is less than 0.05, this further supports the significance of the overall model.

#### 4.5 Barriers Faced By Manufacturing Companies of Mogadishu in Implementing SSCM

The study sought to determine the barriers faced by manufacturing companies of Mogadishu in implementing SSCM as shown in Table 4.13.

**Table 4.13: Barriers Faced By Manufacturing Companies of Mogadishu in Implementing SSCM**

<b>Statements</b>	<b>Mean</b>	<b>Std. Dev</b>
The limited budgets affects implementation of SSCMPs in my company	4.11	.847
Implementation of sustainable supply chain management practices require investment in sophisticated technologies and specific skills sets	3.96	.960
Implementation of sustainable supply chain management practices require high initial costs	3.94	1.12
Limited efforts to effectively coordinate all activities within the supply chain management affects implementation of SSCMPs in my company	3.85	.662
Inadequate support from the senior management team affects implementation of SSCMPs in my company	3.77	.974

**Source; Research Data (2019)**

From Table 4.13, the most significant barrier in implementation of SSCM include the limited budgets (M=4.11, SD=0.847) and the fact that the implementation of sustainable supply chain management practices require investment in sophisticated technologies and specific

skills sets ( $M=3.96$ ,  $SD=0.960$ ). The study found out that the implementation of sustainable supply chain management practices require high initial costs ( $M=3.94$ ,  $SD=1.12$ ) and that limited efforts to effectively coordinate all activities within the supply chain management affects implementation of SSCMPs in the company ( $M=3.85$ ,  $SD=0.662$ ). It was shown that inadequate support from the senior management team affects implementation of SSCMPs in the company ( $M=3.77$ ,  $SD=0.974$ ).

The last objective investigated the barriers faced by manufacturing companies of Mogadishu in implementing SSCMP. The most significant barrier to SSCM adoption includes the limited budgets and the fact that efficient supply chain management activities require investment in advanced technology and specific skills sets. According to Khiewnavawongsa and Schmidt (2013), Sustainable supply chain management activities require investment in advanced technology and specific skills sets. The study found that high initial costs were required to implement efficient supply chain management practices. Some of the initial costs incurred during the introduction of effective supply chain management include investment in advanced technologies, hiring, education and employee supervision and encouragement (Srivastav& Gaur, 2015).

## **CHAPTER FIVE: SUMMARY, CONCLUSION, AND RECOMMENDATIONS**

### **5.1 Introduction**

This section deals with summary of the results that the study. Conclusion, limitations and recommendation is also presented in this section

### **5.2 Summary of the Findings**

This chapter summarizes the findings of the study based on the objectives;

#### **5.2.1 Extent to Which SSCMP are Implemented by Manufacturing Companies in Mogadishu**

Supplier integration and collaborations in SSCM are the significant components of SSCM followed by reverse logistics and lastly green manufacturing. In terms of supplier integration, Most of the studied manufacturing firms mutually share rewards and risks with their suppliers (M=4.07, SD=0.997) besides cultivating good relationship with their suppliers (M=3.95, SD=0.729). The manufacturing firms exceed demand uncertainties of customers because of the good relationship with suppliers (M=3.92, SD=0.729).

On green manufacturing, most manufacturing firms in Mogadishu, Somalia collaborate with suppliers to find the best solution in elimination of the negative effects of operations towards the environment (M=3.85, SD=1.13). Other manufacturing firms consider environmental issues during the design of products (M=3.74, SD=0.712) while others produce outputs that can easily be re-used and recycled throughout their useful lives (M=3.64, SD=0.662).

In view of Collaborations in SSCM, in most of the manufacturing companies in Mogadishu, the activities between suppliers and buyers are effectively coordinated (M=3.92, SD=0.828). Collaborations in SSCM help most manufacturing firms to meet demand uncertainties (M=3.81, SD=0.752). Majority of the manufacturing firms in Somalia share information with all members in the supply chain (M=3.70, SD=1.13).

On reverse logistics, there is recycling of materials in most of the studied companies (M=3.73, SD=0.587) and this helps the company to recover value in returned materials (M=3.66, SD=1.30). Unused or partially used products are reused in the company (M=3.65, SD=1.28) and products collected from field are assessed after which they are remanufactured (M=3.64, SD=0.944).

### **5.2.2 Relationship between SSCMP and Competitive Advantage**

The study found out that supplier integration ( $\beta=0.509$ ,  $p<0.05$ ) has positive and significant relationship with competitive advantage. Green manufacturing ( $\beta=0.201$ ,  $p<0.05$ ) has positive and significant relationship with competitive advantage. Collaboration in SSCM ( $\beta=0.397$ ,  $p<0.05$ ) has positive and significant relationship with competitive advantage. Reverse logistics ( $\beta=0.215$ ,  $p<0.05$ ) has positive and significant relationship with competitive advantage.

### **5.2.3 Barriers Faced By Manufacturing Companies of Mogadishu in Implementing SSCMP.**

The findings of the study indicated that the most significant barrier in implementation of SSCM include the limited budgets (M=4.11, SD=0.847) and the fact that the implementation of sustainable supply chain management practices require investment in sophisticated



technologies and specific skills sets ( $M=3.96$ ,  $SD=0.960$ ). The study found out that the implementation of sustainable supply chain management practices require high initial costs ( $M=3.94$ ,  $SD=1.12$ ) and that limited efforts to effectively coordinate all activities within the supply chain management affects implementation of SSCMPs in the company ( $M=3.85$ ,  $SD=0.662$ ).

### **5.3 Conclusion**

Supplier integration and collaborations in SSCM are the significant components of SSCM followed by reverse logistics and lastly green manufacturing. Most manufacturing firms in Mogadishu, Somalia mutually share rewards and risks with their suppliers besides cultivating good relationship with their suppliers. Most manufacturing firms in Mogadishu, Somalia collaborate with suppliers to find the best solution in elimination of the negative effects of operations towards the environment while other manufacturing firms consider environmental issues during the design of products and others produce outputs that can easily be re-used and recycled throughout their useful lives. In most of the manufacturing companies in Mogadishu, the activities between suppliers and buyers are effectively coordinated. Collaborations in SSCM help most manufacturing firms to meet demand uncertainties. Majority of the manufacturing firms in Somalia share information with all members in the supply chain. There is recycling of materials in most of the studied companies and this helps the company to recover value in returned materials. Unused or partially used products are reused in the company.

Supplier integration has positive and significant relationship with competitive advantage. Green manufacturing has positive and significant relationship with competitive advantage.

Collaboration in SSCM has positive and significant relationship with competitive advantage.

Reverse logistics has positive and significant relationship with competitive advantage.

The most significant barrier in implementation of SSCM include the limited budgets and the fact that the implementation of sustainable supply chain management practices require investment in sophisticated technologies and specific skills sets. The study found out that the implementation of sustainable supply chain management practices require high initial costs and that limited efforts to effectively coordinate all activities within the supply chain management affects implementation of SSCMPs in the company.

#### **5.4 Recommendations from the Study**

The study recommends that all manufacturing firms in Mogadishu, Somalia should give more focus on supplier integration and collaborations in SSCM since they are significant components of SSCM.

Since SSCM has positive relationship with competitive advantage, the study recommends that all manufacturing firms should invest in supplier integration; collaborations reverse logistics and green manufacturing. This would positively contribute towards the gaining of competitive advantage.

The key barriers in implementation of SSCM include limited budgets, the need to investing sophisticated technologies and specific skills sets. The study therefore recommends that manufacturing firms should allocate more funds towards SSCM for competitive advantage.

## **5.5 Limitations of the Study**

The study was limited to sustainable supply chain and competitive advantage. The measures of sustainable supply chain which were also the independent variables of the study included reverse logistics, green manufacturing, supplier integration, collaboration in SSCM while competitive advantage was the dependent variable that was operationalized as cost leaders, focus and product differentiation. There are however other measures and constructs of sustainable supply chain that the study would have covered apart from the identified ones.

The current study was limited to manufacturing firms, this is a limitation because it would be hard to generalize the findings to other sectors for instance the service sector which differs from the manufacturing sector in terms of scope. Although the manufacturing sector plays an important role, the service sector cannot also be ignored when it comes to the growth of the economy. Some of the key service firms in Mogadishu, Somalia include commercial banks, insurance companies and the hospitality sector. All these sectors are critical for the growth of the economy of Somalia as a country and thus limiting that the study would have covered apart from the manufacturing sector.

## **5.6 Suggestions for Further Research**

Since the current study focused on manufacturing firms, future studies should focus on firms in other sectors like the service. The key areas that future studies should focus on can include firms in the service sector like commercial banks and insurance firms. Future studies should cover similar studies in more than one country for comparative purpose. For instance, future studies should sample out countries within East Africa region including Kenya, Uganda and Tanzania. This would enhance detailed comparison of the findings as opposed to a study carried out in a single county.

In the current study, SSCM was investigated in relation to competitive advantage, future studies should be done focusing on other aspects like organizational performance. From regression results, the study revealed that 86% variation on competitive advantage of manufacturing firms is explained by their sustainable supply chain. This finding has a strong implication that apart from the identified measures of sustainable supply chain management (reverse logistics, green manufacturing, supplier integration, collaboration in SSCM), there are other factors with a bearing influence on competitive advantage that future studies should be done to uncover.

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## **APPENDIX I: QUESTIONNAIRE**

You are kindly requested to fill this questionnaire to help me achieve the study objective. Note that any information you give will only be used for academic purpose. Do NOT indicate your name.

### **SECTION A: GENERAL INFORMATION**

1. What is your highest level of education?

Diploma ( ) Undergraduate ( ) Post Graduate ( ) Other ( )

2. How long have you worked with your organization?

Less than 3 years ( ) 3-6 Years ( ) 6-9 Years ( ) Over 9 Years ( )

3. What is your level of employment in your company?

Top Management ( ) Middle Management ( ) Operational Staff ( )

### **SECTION B: EXTENT TO WHICH SSCM ARE IMPLEMENTED BY MANUFACTURING COMPANIES IN MOGADISHU**

Below are several SSCMPs among manufacturing companies. Kindly indicate the extent of your agreement on each of these practices. Use a five point Likert scale **where 1=strongly disagree 2=disagree 3=neutral 4=agree and 5=strongly agree.**

<b>SUPPLIER INTEGRATION</b>					
My organization cultivates good relationship with its suppliers	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Close relationship with suppliers has enabled my organization to offer quality products					
Close relationship with supplier has helped my company to reduce on costs					
We exceed demand uncertainties of customers because of the good relationship with suppliers					
We mutually share rewards and risks with suppliers					
<b>GREEN MANUFACTURING</b>					
We consider environmental issued during the design of products	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
My company collaborates with its suppliers to find the best solution in elimination of the negative effects of operations towards the environment					
We control production processes so as to reduce environmental pollution					
We use environmentally friendly supply chain inputs in manufacturing products					
We produce outputs that can easily be re-used and recycled throughout their useful lives					
<b>COLLABORATIONS IN SSCM</b>					
Activities between suppliers and buyers are effectively coordinated in my company	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
We share information with all members in the supply chain					
We jointly make decisions with firms in the supply chain					
Trust and openness are key elements characterizing supplier collaborations in my company					
Collaborations in SSCM helps us to meet demand uncertainties					
<b>REVERSE LOGISTICS</b>					
Biodegradable materials are used during packaging in my company	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

Unused or partially used products are reused in my company					
There is recycling of materials in my company					
Recycling helps my company to recover value in returned materials					
Products collected from field are assessed after which they are remanufactured					
We refurbish some materials collected from field					

**SECTION C: COMPETITIVE ADVANTAGE**

8. Below are several statements on competitive advantage. On a five point Likert scale where 1=strongly disagree and 5=strongly agree; kindly indicate the extent of your agreement on how they are applied in your organization.

Statements	1	2	3	4	5
The firm focuses on the needs of customers					
The firm focuses on specific niche in the market					
The firm manufactures differentiated products					
The firm manufacture products at a relatively lower costs in the industry					

**SECTION D: BARRIERS FACED BY MANUFACTURING COMPANIES OF MOGADISHU IN IMPLEMENTING SSCM**

Given below are statements on barriers faced by manufacturing companies of Mogadishu in implementing SSCM. Kindly indicate the extent of your agreement on each of these practices. Use a five point Likert scale where 1=strongly disagree and 5=strongly agree.

Statements	1	2	3	4	5
Implementation of sustainable supply chain management practices require investment in sophisticated technologies and specific skills sets					
Implementation of sustainable supply chain management practices require high initial costs					
Inadequate support from the senior management team affects implementation of SSCMPs in my company					
Limited efforts to effectively coordinate all activities within the supply chain management affects implementation of SSCMPs in my company					
The limited budgets affects implementation of SSCMPs in my company					

**Thank you for your cooperation**

## APPNEDEX II: LIST OF MANUFACTURING COMPANIES IN MOGADISHU

1	Anfac Water Com	21	Xalwo Boqolsoon
2	Daldhis Aluminum Factory	22	WarshadaIsbuunyadaCanshuur
3	Ijabo Water	23	Xalwo XaajiCiise
4	Malab Dairy Products	24	WarshadabiyahaSahha
5	Jema Factory Mineral Water	25	Wadani Foods
6	Somali Plastic Factory	26	Jema Mineral Water factory
7	Somali Water Development	27	Shirkadaqalabkadhismaha City
8	Som Tank	28	Dimond Furniture
9	Som Plastic Manufacture	29	Somali furniture Factory
10	WarshadabiyaFurat	30	Somali fruit
11	WarshadaIsbuunyadaShaakir	31	AAranAgri trade
12	Afi Pure Mineral Water	32	Ilkoagri Trade Co.
13	Udug Detergents Factory	33	XalwoBaariyow
14	Man International Company		
15	WarshhadaIbuunyadaMubaarak		
16	Bakery /FoornoUbax		
17	WarshadbiyahaDalsan		
18	Coco-Cola Company		
19	Kabaqori Furniture		
20	Al-buruuj Construction Company		

**Source: Ministry of Commerce and Industry (2017)**