APPLICATION OF GREEN STRATEGIES AND COMPETITIVE ADVANTAGE OF TOTAL SOLUTION LOGISTICS SERVICE PROVIDERS IN MOMBASA, KENYA

BY

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

NOVEMBER, 2016

DECLARATION

This research project is my original work and has not been presented for a degree award in any other University.

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

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DEDICATION

This research project is dedicated to my parents Mr. Tom Bonyo and Mrs. Teresa Onyango who have been my source of inspiration and unconditional love throughout my life. They have instilled in me, discipline with which I face life today, and to them, this is an achievement they desired for me. Special dedication to the love of my life, Daniel, for his patience, love and understanding as I burnt the midnight oil to make this possible as a result, making his life unbearable. To my children, them that complete me; Aggrey, Abel and Queen. The thought of them and my desire to inspire them, motored me to embark on this journey. Special Thanks to my study mates and lecturers at the University of Nairobi for the support and team spirit they displayed. I learnt a lot from them and I must say that, they have made a significant contribution towards my betterment and educational maturity.

ACKNOWLEDGEMENTS

I sincerely would like to acknowledge Dr. Jackson Maalu for his supervision as well as contribution to the completion of this research paper, his guidance, constant encouragement as well as the knowledge base that equipped me to carry out this study. I am inspired by his motivational lectures that have changed my concept of strategic management I am especially grateful to my husband for his constant inspiration which kept me going, his moral and financial support that aided in conclusion of this study.

ABSTRACT

Green strategies have emerged as a key approach for logistics firms seeking to become environmentally sustainable and globally competitive. As a developing country, Kenya has to balance both its business operations and environmental performance. This study's objective was to determine the connection between competitive advantage and adoption of green strategies by total solution logistics service providers in Mombasa, Kenya. A descriptive research design was adopted for this study which targeted a population of logistics firms operating in Mombasa County listed by Federation of East African Freight Forwarders Association, FEAFFA and Kenya International Freight and warehousing Association, KIFWA. A census survey on all the 63 listed total logistics service providers was carried out. The data was collected using questionnaires. The results obtained indicated that adoption of green strategies are at implementation stage and that most logistics firms were considering adoption. The study also established that the major apparent benefits of adopting green strategies are; reduction of environmental degradation, reduction of business costs and enhanced customer base. The study findings indicates that more established and sizeable firms were the most likely adopters of green strategies compared to their smaller counterparts. The most adopted green strategies were pollution prevention and clean technology whereas product stewardship and sustainability vision strategies were neglected. The study recommends that the management in logistics firms should focus and allocate more resources towards pollution prevention and clean technology strategies as these results in greater savings and thus higher firm performance. They should also strive at achieving sustainability as this will improve productivity in the logistics industry, environment performance and reduce waste to attain cost savings. Finally, the logistics firms should act fast on implementation of green strategies since there are prospective paybacks which may result in business growth and good publicity.

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LIST OF ABBREVIATIONS AND ACCRONYMS

LSPs	**:**	Logistics Service providers
TSLSPs	**:**	Total Solution Logistics Service providers
KIFWA	**:**	Kenya International Freight and Warehousing Association
KTA	**:**	The Kenya Transporters Association
FEAFFA	**:**	Federation of East Africa Freight Forwarders Association
KISM	**:**	Kenya institute of Supplies Management
NEMA	**:**	National Environmental Management Authority
RBV	**:**	Resource Based view
SARA	**:**	Superfund Amendments and Reauthorization Act
TRI	**:**	Toxic release Inventory
DFE	**:**	Design for Environment
SPSS	**:**	Statistical Package for Social Sciences

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

A green strategy complements the business, operations and asset strategies that are already well understood and often well-pronounced by the organization. It basically aids a business make resolutions that have a positive influence on the environment. The ideologies that form the basis of a green strategy should lead a business to make decisions based on solid business logic and make good business sense. They are therefore, sets of policies aimed at fostering common culture of awareness and actions that facilitate decision and transformation initiatives to improve the environment and geared towards achieving attractive value propositions that are cost effective. Its mission is to develop and implement approaches to sustainability. Businesses that nurture a green culture today are often noticeable to stakeholders as unique. However, at other times the differences in a green culture are subtly small (Olson, 2008). Green strategies are said to improve corporate image and shows that the organization cares. A survey by Thornton (2014) found a nobler reason for greening amongst companies; they believe that it is their responsibility to do so. Among the eco-work that companies are undertaking are: improving energy efficiency, creating products and services that are more sustainable, and calculating their carbon footprint. Another development is the increase in companies reporting on sustainability (Jone, 2014).

This study will be anchored on resource based view, population ecology and institutional theories. Firm's resources can be defined as those tangible and intangible assets which are semi permanently tied to the firm (Caves, 1980). Some of such resources are brand names, technological know-how, and engagement of skilled personnel, trade acquaintances, machinery, efficient processes and capital. Resource based view theory provides valuable understanding of the competitive advantage that arises when an organization escalates its level of environmental commitment. Organizational/Population ecology employs insights from biology, economics and sociology, and uses statistical analysis to understand the conditions under which organizations emerge, grow, and die. From an institutional perspective, businesses function within a social context of norms, values and assumptions about what constitutes appropriate behaviour. Institutional theorists affirm that the institutional

environment can intensely impact the growth of organization's formal structures, often more severely compared to market forces. Rowan, Meyer and Brian (1977), argued that, often, acceptance of these "institutional myths" are simply ceremonious in order for the firm to attain or retain acceptability in the institutional environment. The implementation and prominent show of institutionally-acceptable "trappings of acceptability" aids in reserving an atmosphere of organizational action based on "good faith". Legitimacy in the institutional environment helps ensure organizational continued existence.

Logistics plays a key role in backing-up organizations as they endeavor for more efficient management systems (Cozollino, 2012). The logistics industry in Kenya has been advancing since the 1950s due to nationalization and globalization trends in recent decades. Logistics service providers (LSPs) in Mombasa are registered with Kenya international freight and warehousing Association (KIFWA) (http://www.kifwa.co.ke), the sole representative of all Freight Forwarding Practitioners in Kenya, The Kenya Transporters Association (KTA), Federation of East Africa Freight Forwarders Association (FEAFFA) and Kenya institute of Supplies Management (KISM). According to FEAFFA and KTA, there are about 592 logistics firms operating in Mombasa, out of which, 63 are total solutions logistics service providers (TSLSPs) whose value proposition to their clientele include most of above mentioned services in one window. These specialists have the capability to handle customs clearance, warehousing and haulage of goods to the customer's door step. This study will focus on this category of LSPs.

1.1.1 Concept of green strategies

Green strategies have recently gained increasing relevance. Businesses are expected to take responsibility for their input towards the deteriorating environmental state (Dimitriades, 2007). The idea of "green business" arose towards the end of the 20th century in the wake of the snowballing public disquiet about the sustainability of economic progress. This, was stirred up by the rising consciousness of conservational matters such as the fast-tracking exhaustion of natural resources and the decline in the quality of the environmental. The roots of the contemporary "green movements" can be tracked down to the mid of 1960s and it took over 20 years for firms to acclimatize to the "greening" leanings and implement them into their ideologies and strategies, inventing the term green business (Jacobson & Petrie, 2012) Nevertheless, to date, the

element of the green business model is somewhat baffling as demonstrated by the variation of its definitions found from different sources. Moreover, green strategies are yet to be completely incorporated and applied by business entities around the globe, with noticeable differences of business penetration by the “green” ideas in different countries. This is due to several reasons, one of them being the fact that the “greening of business” is still fundamentally viewed as an increase or revenue loss, extra burden in terms of cost and the others being related to the national facts in terms of cultural, political, and economic dynamics. For companies seeking to create a competitive advantage in the global marketplace, sustainability has become the tune, thus the need for green strategies (Čekanavičius, Bazytė & Dičmonaitė, 2014).

Certain issues must be considered in order to cultivate strategies that are both good for the environment and good for businesses. It is imperative to determine whether or not, the aspects of the business are efficient and are being protective of the environment. Green stewardship and energy exhaustion ought to be considered new business indicators, as part of the general strategy to improve business efficiency. The organization also needs to retain a public goodwill through setting meaningful and attainable aims, with transparency in reporting progress and take a leadership position in driving energy conservation and environmental stewardship through the value chain and across the industry. When experiencing social and regulatory pressures, ‘green’ firms preferably responds with energy conservation initiatives that proactively address energy and climate challenges and are verifiable. These matters can seem complex when considered individually and possibly overwhelming when observed as an interrelated group. They call for a structure that helps identify and prioritize environmental efforts by demonstrating how problems and opportunities can be broken down into distinct areas before segmenting them into manageable tasks. These projects can be joined to form a cross-organizational program managing energy, cost and environmental issues (Johnson, 2009).

1.1.2 Competitive advantage

A competitive advantage is an edge over other players gained by offering clients a greater value, through reduced prices or by offering superior benefits and service that validates premium prices. Porter recommended four "generic" business strategies that could be implemented in order to achieve competitive advantage. The approaches relate

to the extent to which the range of a business' activities are narrow versus broad and the to what extent a business differentiates its products (Riley, 2015)

Adaptation and obtaining of competitive advantages in the current business framework calls for firms to device processes of efficiency improvement (Wright, 1994). Capability to integrate activities to key effect in the three areas of marketplace, their operations and their culture is a vibrant factor in the success of world class organizations. Continued competitive advantage emanates from the holistic management of all three areas (Smith, 1995). The "hypercompetitive environment' within which businesses are operate at present, demands that firms look for means to continually progress their competitive advantage if they are to stay successful (Mathews, 2006).

Pearce and Robinson (2007) on their part define competition as the state within a market setup where firms work and set policies to obtain advantage or greater success over rivals. Mintzberg and Lampel (1999) stated that the core of strategy formulation is dealing with competition. This is realizable by exploiting superior resources and capabilities. Attaining and sustaining a competitive advantage is essential to strategy. In the resource-based view of the firm, 'competitive advantage lies "upstream" of the product markets and rests on the firm's distinctive and difficult to-imitate resources (Afuah, 2002). Thompson (2007) argued that a firm's strategy is its management's action plan for running the business and directing operations.

The making of a strategy signifies a managerial obligation to chase a pre-defined set of actions in developing the business, competing successfully, appealing to customers, carrying out operations, and revamping the company's financial and market performance. Therefore, a firm's strategy looks at how the management plans to develop the business, how it will form a loyal set of clientele and beat their rivals, how every functional area of the business will be run and how performance will be boosted. A strategy succeeds better when it is established on business tactics and competitive steps intended to (1) appeal to buyers in a way that sets the company apart from competitors and (2) carve out its own market position. Imitating practices by successful companies in the industry and trying to mimic their market position seldom works. In companies with a wide range of operations, it's far more precise to view strategy as a collective or team effort involving managers and sometimes, key employees, down

through the whole organizational pyramid. Setting a strategic vision and mission, developing objectives, and creating a strategy are basic tasks which set the firm's direction. In synergy, they constitute a strategic plan for handling the industry and competitive conditions, the anticipated actions of industry actors, and the challenges and issues viewed as obstacles to the company's triumph (Thompson, 2007).

1.1.3 Logistics firms in Kenya

Logistics is one of the most crucial developments in the supply chain industry and implies the organization and control over freight movements. Logistics management has an impact on the firm's performance and service delivery (Sheikh and Rana, 2012). The logistics function affects significantly the performance and competitive advantage through cost reduction and fast adaptation to the rapidly changing global economic trends.

Logistics firms in Kenya comprises of air and sea freight forwarding firms, shipping companies, container freight stations and haulage/ transport among others. Firms offering total solutions logistics provide most of these services in one window thus adding value to the customer's supply chain. LSPs in Mombasa constitute an important element of the service sector in Kenya, both in their involvement to the country's employment and income generation and the part they play in external trade. Such include ensuring the right product variety and quantity are conveyed in a timely manner (Murage, 2011). Modern logistics firms operate in environments characterized by escalating fuel prices, environmental degradation from waste produced by their machinery, green movement lobby groups that advocate for mandatory participation in environmental initiatives and government regulations enforced via National Environmental Management Authority (NEMA) and the county governments.

1.2 Research problem

In today's life, green strategies have become more relevant (Khan, 2014). Green firm's functions are guided by values that solve and seldom cause, environmental and social harms. Such businesses apply principles and policies that progress the superiority of life for their customers, employees and the community. These strategies are instituted as a means to conserve natural resources, reduce the production of greenhouse gases and cut costs to business owners (Szuchnicki, 2009). Importantly, instituting green strategies is not necessarily something that can be visible to customers. Responsiveness

to the global environmental concerns such as carbon emissions, global warming, toxic matter usage, and resource shortage has intensified over the past times. Strategists and activists are supporting going green initiatives, and many organizations all over the world have responded to this call by applying green strategies (Xie, 2012).

Logistics industry is part of the transport industry that contributes to the economic development of the country. Application of green strategies is the norm in most industries globally and locally hence the logistics firms have not been left behind in aiming to achieve competitive advantage (Rodrigue, 2013). Application of green strategies such as; Promoting sustainability to a core business strategy, entrenching green ideologies in innovation efforts, putting green principles into consideration while making major decisions and assimilating sustainability into corporate and brand marketing and messaging (Kauffeld, 2009) permits firms to continue to excel and develop a deeper shade of green, thus becoming more competitive in the market.

Several studies have been done on green practices and strategies, Masoumik, Abdul-Rashid and Olugu (2014) undertook a study on 'gaining competitive advantage through strategic green supply chain management in Malaysia'. The study found out that initiating new strategies that lead to technological development, creation of new products, and new markets can be regarded as a key instrument for establishing Competitive advantage. Environmentally cognizant policies not only enable the firms to moderate their total costs and risks, but also help in growing their revenue and intangible values, such as brand reputation and trust. Mwaengo (2013) carried out a study on green supply chain management strategies and environmental performance in Bamburi Cement limited where he examined the magnitude of GSCM practice at Bamburi Cement limited. This study was centred on the manufacturing industry and its impact on the environmental performance. Omonge (2012) studied green supply chain management strategies and competitiveness of commercial banks in Kenya. The study sought to establish the role played by GSCM strategies on an organizational competitiveness among commercial banks in Kenya. From the previous discussion, it is apparent that many studies have been done on green strategies and their influence on performances leaving a gap on the study of the relationship between green strategies and the competitive advantage of the firm. Therefore this study will focus on green strategies such as an organization's extent of investment in R&D to support greening of products and services to achieve competitive advantage of logistics firms and seek

to answer the following research question: Does application of green strategies influence competitive advantage of firms offering total solutions logistics in Mombasa?

1.3 Research Objectives

The research objectives of this study are to:

1. Establish the extent of green strategies adoption by total solutions logistics service providers in Mombasa, Kenya
2. Determine the relationship between application of green strategies and competitive advantage of total solutions logistics service providers in Mombasa, Kenya.

1.4 Value of the Study

Green strategies is one of the main initiatives in industries and the world's economy. The study will therefore, be important to various stakeholders, specifically, the logistics industry players and largely contribute to the theoretical view on the adoption and benefits of green strategies in the logistics industry.

The outcomes of this research will be important to policy makers and help them formulate policies that can navigate the industry to put in place proper infrastructure that may empower the industry towards sustainability.

The academic society will find the report vital in helping them recognise the value of green strategies in the logistics sector. As a result, it will open up research opportunities in areas that are inadequately covered in the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter takes into account the theoretical and empirical literature from past studies on the subject of green strategies and sustainability. A critical review of the theories, green strategies, firms' competitive advantage and empirical review shall be undertaken.

2.2 Theoretical foundations of the study

Scholars have reported an upward trend on institution of green strategies in businesses for sustainability with different theories being anchored in these studies. Many of these theories have been exploited to give a better understanding of greening to the academicians and to help practitioners successfully manage the process. These theories are; the resource based view, its subset, the natural resource based view theory and the Institution theory of the firm.

2.2.1 Resource based view theory

The RBV model explains that the identifying and possessing internal strategic resources contributes to a firm's ability to build and maintain a competitive advantage and advance performance (Madhani, 2010). Resource based view theory sees the firm as a package of resources (Penrose, 1959), according to its philosophies, an organization must obtain an efficient set and flow of the right kind of resources from its environment in order to survive and develop its performance. A resource is considered strategic if it meets certain conditions - valuable, non-substitutable, rare or specific, and unique in order to contribute to the improvement of the performance of the firm (Crook, Ketchen Jr, Combs & Todd, 2008). Value refers to the extent to which the resources are aligned with the external environment to take advantage of opportunities and minimize threats. Non-substitutability is the extent to which competitors are incapable of creating comparable resources. Uniqueness is the extent to which competitors cannot acquire or replicate the resources, or can only do so at a significant cost disadvantage (Hoskisson, Hitt, Wan, & Yiu, 1999). According to RBV model, firms try to identify strategic means that will most likely make the firm more competitive then employ these resources to exploit their value (Sirmon, Hitt & Ireland, 2007). Resources must also be efficiently managed and exploited given the changing external conditions an organization faces in competitive business environment (Lippman & Rumelt, 2003).

The identification and explanation of the benefits of implementing green strategies and environmental initiatives in the logistics industry can be explained using the resource based view theory of the firm.

It appears inevitable in future that businesses and markets will be controlled by, and dependent upon the environment. Strategy and competitive advantage will likely be entrenched in capabilities that enable environmentally sustainable economic activity – a natural resource based view of the firm (Hart, 1995). The context of this theory is composed of; Pollution prevention; product stewardship, Clean Technology and sustainability vision and development.

In the recent past, firms have faced tremendous pressure to minimize or eliminate pollution from their operations. An example is, the Superfund Amendments and Reauthorization Act (SARA) that was passed in the United States, in 1986, requiring that companies reveal their emission levels through the Toxic release Inventory (TRI). This led the management in most affected industries like pulp and paper, petro chemicals, Automotive and electronics to profoundly rethink their approach to pollution abatement (Smart, 1992). According to Smart (1992) Pollution abatement could be made possible two folds; Control and Prevention. This model will be used to demonstrate the long term as well as short term benefits of adopting a deeper shade of greenness in organizations.

2.2.2 Population ecology theory

Population ecology of organizations make use of intuitions from biology, economics and sociology, and employs statistical analysis to try to comprehend the conditions under which organizations emerge, grow, and die (Sytse & Schreuder, 2013).

Population ecology scans the environment in which an organization plays and a process like natural selection occurs (Hannan & Freeman, 1977). This theory looks at firm mortality, organizational formation, growth and transformation. The model covers a number of more specific fragments including: Inertia and change, resource partitioning, niche width and density dependence (Hannan & Freeman , 1989).

Inertia and change theory maintains that organizations that are dependable and accountable are those that are favored by selection. A negative by-product, of the need

for dependability and accountability is a high level of inertia and an opposition to change. An important prediction of organizational ecology is that the process of change itself is so disruptive that it will result in a higher mortality rate. Models about inertia and change are essential to the research program of organizational ecology, which seeks a better understanding of the larger changes in the organizational scene. Given the constraints on firm-level adaptation, some of these changes emanate from the entry and selective replacement of firms. Therefore, organizational ecology has spent huge effort on understanding the formation and death rates of organizations (Sytse & Schreuder, 2013).

Niche model differentiates generally between two types of organizations: generalists and specialists. Specialist organizations maximize their utilization of the environment and accept the risk of undergoing a change in that environment. Generalist organizations, on the other hand, accept lower levels of exploitation in return for superior security (Hannan & Freeman 1977). Niche theory shows that specialization is generally preferred in stable or certain environments. However, the key contribution of the niche concept is probably the finding that generalism is not always optimum in uncertain environments" (Hannan & Freeman 1977). The exception is shaped by environments which "place very diverse strains on the organization, and the duration of environmental states is short, compared to the life of the organization" (Hannan & Freeman 1977).Hence, the niche theory clarifies the differences in industrial structure in different industries and how they are shaped by relevant environments.

Organizational ecology also predicts that the rates of founding and mortality are reliant on the density of the market. As expressed by Hannan and Freeman (1977), the two central mechanisms here are legitimation and competition. Legitimation generally upsurges at a decreasing rate, with the number of firms, so does competition, at an increasing rate. The outcome is that legitimation procedures will carry the day at low numbers of firms, while competition at high numbers

This theory will be instrumental in identifying the extent to which firms that do not adapt to current environmental and greening demands are likely to die or survive.

2.2.3 Institutional theory of the firm

Institutional theory studies how external forces impact a company (Hirsch, 1975). The theory submits that establishments function within a social system and their conducts are not limited to dyadic relationships. It suggests that a robust appealing force behind a business's behavior is socially based and is entrenched within institutions and unified organizational networks (Lacobucci & Hopkins, 1992).

Isomorphic drivers within institutional theory are namely, coercive, normative, and mimetic (Powell, DiMaggio & Walter, 1983). Coercive isomorphic drivers arise from stimuli employed by those in authority including state agencies (Rivera & De, 2004). Normative isomorphic drivers cause firms to adapt in order to be considered legitimate in terms of the firm's activities particularly in relation to environmental management strategies (Ball & Craig, 2010). Mimetic isomorphic drivers, on the other hand, happen when organizations copy the activities of successful competitors, in an effort to imitate the route of their success (Aerts, Cormier & Magnan, 2006).

The concept describes how a firm handles issues of greening as a result of external pressures (Zandbergen, Jennings & Paul, 1995). Businesses yield to institutional pressures to uphold their social legitimacy, as well as seeking economic productivity. The prescribed guidelines of environmental organizations relate to environmental regulations, performance standards and various prescribed administrative guidelines that organizations must stick to throughout adoption of green strategies. This model will be instrumental in showing how the logistics industry is under pressure from different institutions to become environmentally friendly. This includes customer demand, increasing environmental regulations by such institutions as NEMA, managerial concerns with ethics and customer satisfaction.

2.3 Green strategies

Awareness and importance of green strategies and sustainable supply chains have been budding over time with the theme now becoming mainstream. A display of this is the increasing presence of environmental performance as a core organizational capability. Being green is not easy but, driven by imminent rules, consumer pressure, and decrees from corporations, more businesses are working towards greening and sustainability efforts (Partridge, 2008). Some studies have looked at environmental concerns, often

probing consumer views on green strategies (Clark, Kotchen, & Moore, 2003). Outlined below are the green strategies commonly adopted by firms.

2.3.1 Pollution prevention

Pollution control involves doing away with waste after they have been formed while pollution prevention centers on decreasing or getting rid of wastes before they are created (Ahuja, Hart & Gautam, 1996). As put across by the Canadian Council of Ministers of the Environment, Pollution control is the addition of practices, procedures, materials, products or energy to waste streams to diminish the risk posed by pollutants and waste before their release to the environment. By regulating the release of pollutants and waste into the environment, pollution control makes a significant contribution to environmental protection. Pollution prevention policies depend on endless enhancement efforts to reduce waste and energy use. This revolution is motivated by a fascinating logic; Pollution prevention pays. Emerging global standards for environmental management systems, for instance, ISO 14,000, have formed strong incentives for businesses to cultivate such competences. In the past decade, firms have pursued to avoid colliding with nature's economy and the burden of linked costs through greening and pollution prevention strategies (Ahuja, Hart & Gautam, 1996).

2.3.2 Product stewardship

The product Stewardship Society defines Product stewardship as 'Handling the health, safety, and environmental facets of raw materials, midway, and consumer products through their life cycle and across the value chain responsibly, in order to avert or minimize undesirable impacts and maximize value'. This may be realized, in part, by reshaping products to use less damaging substances, to be more durable and eco-friendly. The highest accountability lies with whoever has the most capacity to affect the full life cycle environmental influences of the product, which, in most cases, is the producer of the product, though all parties within the chain of commerce have roles. Product stewardship focuses on curtailing not only pollution but also all environmental impacts related to the full life cycle of a product. As corporations move towards zero emissions, reducing materials and production of wastes need essential changes in fundamental product and process strategy (Hart & Ahuja, 1996). Design for Environment (DFE), a tool for creating products that are easier to recover, reuse or recycle is becoming increasingly important. DFE captures a broad scope of external viewpoints by including technical staff, environmental specialists, end customers and

even external agents in the process. By reducing materials and energy consumption, DFE can be highly gainful. Appropriately effected product stewardship offers the possibilities of revenue growth through product differentiation.

2.3.3 Clean technology

Firms with focus on the future can initiate a proposal for and capitalize on tomorrow's technologies. The prevailing technology base in most businesses are not ecologically sustainable. For example, while they have made significant development over the past years in pollution prevention and product stewardship, the chemical industry is still limited by its dependence on the chlorine molecule. As long as the industry depends on its past experiences in chlorine chemistry, it will have problems making progress to environmental protection (Hart & Ahuja, 1996).

2.3.4 Sustainability vision

According to (Hart & Ahuja, 1996), pollution prevention, product stewardship and clean technology all drive organizations towards business sustainability. However, without a structure to give bearing to those undertakings, their effect will go to waste. A vision for sustainability is like a plot to the future, guiding how products and services need to progress and what new capabilities will be essential to reach there. Oddly, chemical companies, look upon only a few years ago as the worst environmental adversaries, are among the few to have dared an attempt to ensure sustainable environment earnestly. It can be reasoned that a communal vision related to sustainable growth applies to the three green strategies. It symbolizes a commitment to a common direction not a rigid plan or blueprint for action (Senge, 1990).

2.4 Empirical literature on green strategies and competitive advantage

Evidence through a study by (Hart & Ahuja, 1996) can be used to support either the view that green strategies such as pollution prevention are a cost liability on firms and unfavorable to a firm's pursuit to achieve competitive advantage, or that reduction of emissions escalates productivity and saves money, giving firms a cost advantage. In an effort to resolve this inconsistency, the correlation between emissions reduction and firm performance was scrutinized empirically for sample of businesses drawn from the Standard and Poor's 500 list of corporations. Although this population is evidently biased towards the largest of firms, this was not believed to be a problem for this study as there was plenty of evidence that environmental performance and emissions levels

varied substantially among the largest organizations .The results of this study suggested that it does undeniably pay to be green and that efforts to prevent pollution and reduce emissions dropped to the 'bottom line' within one to two years of launch and that those firms with the highest emission levels stood the most to benefit. Operational performance was considerably stimulated in the subsequent year, while it took about two years before financial performance was affected. These were general findings founded on a sample drawn from a broad range of industries; the results may be even major for particular industries where emissions and effluents are salient, like the transport and logistics industries.

In 'Greening the Service profit Chain', Kassinis and Soteriou (2003) explored the nature of the relationship between environmental management practices and performance in the context of services. Precisely, they investigated whether the use of environmental practices by a service firm is clearly related to performance through the arbitrating influence of enhanced customer satisfaction and loyalty. They deduced that environmental strategies and practices can be incorporated within the service profit chain and may power customer satisfaction, loyalty, and subsequently performance of a company.

'An analysis of consumer reactions to green strategies' by Borin, Lindsey-Mullikin and Krishnan (2013) had a primary objective of examining customer opinions of different green strategies, specifically to whether firms should employ their resources in developing new green products, should focus their efforts on recycled or refurbished products or should participate in green processes throughout the business of the organization. Results showed that green strategies have a great influence on consumer purchase behaviour regardless of the exact type of green strategy. Green Strategies, therefore, was found to matter to eco-customers and industry intelligences indicated that this group is rising rapidly.

However, an analysis of Swiss products by Wustenhagen (1998) noted that many businesses offering green products inevitably price them above conventional ones and consider them a distinct industry but most consumers are unwilling to pay premiums for green products.

2.5 Summary of literature review

According to Byrne, Ryan and Heavey (2013), it is becoming progressively obvious that there has been a shift from the traditional "does it pay to be green" to a more welcoming attitude towards "being an important subscription". What is not as clear is the level of environmental services being offered by sellers and the real demand levels by buyers of logistic services. The general logistics studies concentrated on the growth and production of the logistic industry while more current studies have taken logistical proliferation as a given and have begun to place more focus on the component of environmentally sustainable logistics (Tseng,Yue & Taylor, 2005).

For sustainable business to have a future, it must have a demand and supply. Logistic providers must be keen on supplying more ecologically friendly services and buyers of these services must be willing to pay for them, if certainly they are more costly in terms of user performance dynamics – e.g. cost, time, quality etc (Byrne, Ryan & Heavey, 2013). The literature has also revealed that at a high level both buyers and suppliers can see value obtainable through commitment to green strategies. However, a problem that has not been addressed in the literature is the degree to which the parties involved have internalized green strategies in their businesses.

To address this gap, this study has been deliberated for logistics service providers (LSP), to assess attitudes to and knowledge of green strategies as well as analyse their preparedness to implement green strategies, if that has not been done already.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology that was used to carry out this research. It embodies; the research design, population, the research instruments, data collection procedures and data analysis techniques.

3.2 Research design

The Research adopted a descriptive survey. The main purpose of descriptive research is the description and reporting of research findings on the state of affairs as they exist. (Kombo & Tromp, 2006).

According to Orodho (2003), descriptive survey is a method of information collection through interviews or administration of a questionnaires to a sample of individuals. Descriptive research gathers data to answer questions about the current status of the subject under study (Mugenda & Mugenda, 2003). This study sought to use the descriptive survey because of the need to collect information from respondents on their opinion and knowledge relating to green strategies and competitive advantage of total solution logistics service providers.

3.3 Population of the study

The population of the study was logistics firms in Mombasa with the target population being total solution logistics service providers (TSLSPs) based in Mombasa, Kenya. According to FEAFFA's directory, there exists about 63 TSLSPs in Mombasa. The study was a census survey, founded on the reasonable and manageable size of the population. Due to the fact that the entire population is located within Mombasa, accessibility and timeliness of data collection was anticipated.

3.4 Data Collection

This study made use of primary data which was collected by use of questionnaires. The questionnaires were administered using the drop and pick later method and consisted of three sections divided into demographics, Green strategies adopted by firms and levels of competitive advantage a firm enjoys as a result of their green initiatives. The target of the questionnaire were the chief executive officers or the head of Health, Safety, Security and Environment (HSSE) functions of the organizations since they are more likely to have access to all the information needed for the research.

3.5 Data analysis

This involved, first, systematically recording the data. According to Kombo & Tromp, (2006), raw data collected, should be processed before they can be analyzed. This involved Identification and correction of errors in the data, coding of the data and storing them in a suitable form. After data collection, the questionnaires were edited and coded for completeness and precision to eliminate errors. Failure to do this would reflect adversely on the study findings. The data was eventually stored electronically to minimize its volume and for ease of distribution.

The data analysis entailed calculating the mean, standard deviation and performing regression analysis on the research variables. The descriptive technique was used to analyze the data generated from part II of the questionnaire to meet objective one. The regression model was used to link the independent variables to the dependent variable on data generated from part II of the questionnaire for objective two.

The mean was calculated from scores obtained from the likert scale data in the questionnaire. Standard deviation was calculated to show how application of green strategies by TSLSPs deviate from the calculated mean.

Level of competitive advantage in the firms was measured by calculating actual percentage mean of the data obtained from the indicators. These indicators were; Customer base compared to competitors, Profitability, Customer satisfaction and loyalty, Relative market share, Corporate/ brand image, Public and government goodwill. The results were interpreted and presented using tables that enabled description of the study findings. Statistical Package for Social Sciences (SPSS) software was utilized.

The regression equation took the form:

$Y=\beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \varepsilon$

Where:

Y= Competitive advantage

X1= Pollution prevention

X2= Product stewardship

X3= Clean technology

X4= Focus on sustainability

$\beta 0$ = constant.

B1 = Coefficient of pollution prevention variable

$\beta 2$ = Coefficient of product stewardship variable

$\beta 3$ = Coefficient of clean technology variable

$\beta 4$ = Coefficient of focus on sustainability variable

ε = Error term

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter introduces the analysis of the data collected and interpreted on the application of green strategies and competitive advantage of total solution logistics service providers in Mombasa, Kenya. Out of a total of 63 questionnaires issued, 48 responded which was a 76% response rate which is considered to be adequate to constitute a basis for valid conclusion.

4.2 Profile of respondent firms

4.2.1 Age of the firm

The age of the firms was measured by the number of years the company had been in operation. This is particularly important because it enables the researcher identify the relationships between age and the extent to which an organization adopts green strategies. Table 1 below illustrates the percentage of the length of time the firms have been in operation in years.

Table 1: Ages of the respondent firms

Time	**Frequency**	**Percentage (%)**
1 – 3 years	8	16.7
3 – 5 years	11	22.9
5 – 10 years	13	27.1
Over 10 years	16	33.3
Total	**48**	**100.0**

According to the table, 16.7% of the firms have been operating for less than three (3) year, 22.9% have been operating between three and five (3-5) years, 27.1% of the firms between five and ten (5-10) years, 33.3% of the firms have been operational for over ten years.

These findings illustrate that majority of the logistics firms are older than three years and would therefore, appreciate the strength of greening business processes and products.

4.2.2 Ownership structure

The ownership structure describes the form of shareholding arrangements the firm is in as well as their geographical coverage. This was measured by whether the organizations were sole proprietorships, partnerships or limited corporations and whether the shareholders were local individuals or foreign investors. This was instrumental in determining how the ownership structures affected the adoption of green strategies and commitment to sustainability.

Table 2: Ownership structure

Ownership structure	**Frequency**	**Percentage (%)**
Locally owned sole proprietorship	8	16.7
Locally-owned partnership/corporation	15	31.3
Global/international ownership	18	37.5
Local and global partnership	7	14.6
Parastatal organization	0	0.0
Total	**48**	**100.0**

Table 2 illustrates, in percentages, how the ownership structures of the organizations look like. According to the table, 16.7% of the firms were locally owned sole proprietorship, 31.3 % were locally owned partnerships and corporations while 37.5% were global organizations. 17.6% consisted of a hybrid of local and global partnerships.

These findings illustrate that majority of the total solution logistics firms were global organizations. This implies that the firms have a global mindset and would recognize the criticality of the global greening demands due to pressure from global environmental management organizations.

4.2.3 Workforce capacity

Workforce capacity brings out the size and level of automation of the organization through the number of employees the organization has. This aspect enabled the researcher to measure the extent to which the firms are labor or capital intensive.

Table 3: Workforce capacity

Number of employees	Frequency	Percentage (%)
1 – 10 employees	5	10.4
10 - 50 employees	19	39.6
50 – 100 employees	10	20.8
Over 100 employees	14	29.2
Total	**48**	**100**

Table 3 illustrates the percentage of the human resources employed to handle different tasks. From the findings, 10.4% of the organizations had less than ten (10) employees, 39.6% of the firms had between ten and fifty (10-50) employees, 20.8% had between fifty to one hundred (50-100) employees while 29.2% of the respondent firms had more than one hundred employees.

This research findings show that majority of the total solution logistics service providing firms had between ten and one hundred employees. This implies that majority of the logistics firms' tasks were more capital than labor intensive. This would mean that many logistics machinery were automated and needed little manpower. Adoption of green strategies is therefore, crucial in order to reduce negative environmental effect of logistics firms operations for such big organizations.

4.2.4 Monthly financial turnover

Financial performance indicates the overall health and capabilities of an organization and defines the extent to which they can invest in business strategies. The researcher sought this information in an attempt to establish the relationship between the financial performance and adoption of green strategies.

Table 4 illustrates the monthly financial turnover of the organizations in Kenyan shillings of total solution logistics service providers in Mombasa. From the findings, 37.5% of the respondent firms realized a financial turnover of between 1 million and 10 million shillings, 25% managed a turnover of between 10 million and 50 million Kenya shillings while 22.9% of the organizations realized financial turnover ranging between 50 million and 100 million Kenyan shillings. 14.6% garner an impressive 100 million and above, in Kenya shillings.

Table 4: Monthly financial turnover in Kenyan Shillings.

Financial turnover in Kshs.	Frequency	Percentage (%)
1 million -10 million	18	37.5
10 million – 50 million	12	25
50 million – 100 million	11	22.9
Over 100 million	7	14.6
Total	**48**	**100**

This goes to show that majority of the firms earn a top line revenue of 10 million and above, equipping them with financial muscles to keep track of and manage the impact of their businesses on the environment and in essence, are capable of adopting green strategies.

4.2.5 Existence of environmental Management Department

Evidence as to whether or not and to what extent an organization has a greening goals and objectives can be derived from the presence or absence of a functional area within the organization managing the greening activities. The researcher sought to establish the percentage of total solution logistics firms with established environment management departments.

Table 5: Environmental management department

Environmental Management function	Frequency	Percentage (%)
Yes	32	66.7
No	16	33.3
Total	**48**	**100**

Table 5 illustrates the percentage of total solution logistics firms in Mombasa that had an established environmental management department that actively conducted its duties to ensure environmental standards were met. The responses indicated that 66.7% of the firms had an environmental department while 33.3% did not. This is a clear indicator that majority of the firms surveyed were aware of the importance of adopting green

strategies and had a department dedicated to ensuring compliance with environmental management demands.

4.2.6 Registration with Environmental Management Body

Collaboration and co-operation with environment management bodies clearly indicates that a company has some level of commitment to support environment protection.

Table 6 shows the percentage of the logistics firms in Mombasa County that were registered with an environmental management body. The table illustrates that 83.3% were registered while 16.7% were not.

Table 6: Registration with Environmental Management Body

Registration with environmental bodies	**Frequency**	**Percentage (%)**
Yes	40	83.3
No	8	16.7
Total	**48**	**100**

These findings indicate that majority of total solution logistics firms in Mombasa were registered to at least one environmental management body. This implies that external pressures such as government legislation, customers' demands and increased environmental awareness among firms has played a key role in ensuring that these firms adopt greening policies.

4.2.7 Environmental Certification

Environmental certification is a form of environmental regulation set by certification service organizations that firms voluntarily choose to comply with. This indicates a firm's commitment and initiatives in support of environment protection.

Table 7 illustrates the percentage of total solution logistics service providers in Mombasa that have received environmental certification that aims at recognizing their efforts in conserving the environment and adopting green strategies. 31.3% of the firms

had attained at least one level of environmental certification while 68.8% had not attained any certification.

Table 7: Environmental Certification

Environmental certification	Frequency	Percentage (%)
Yes	15	31.3
No	33	68.8
Total	**48**	**100**

The findings demonstrate that as much as the logistics firms adopt green strategies, majority are yet to invest considerably on management of the environment in order to achieve certification levels.

4.3. Green strategies

4.3.1 Pollution prevention

This section highlights the extent to which total solution logistics service providers in Mombasa have adopted strategies that promote pollution prevention in their business operations. To measure the extent to which these strategies were adopted, a 5- point Likert scale was utilized with: 1 signifying No extent at all, 2- small extent, 3 moderate extent, 4-large extent and 5- very large extent

The results on Table 8 indicates that the most adopted pollution prevention strategy is where the organization complies with the environmental demands of the local authority with a mean score of 3.604. This implies that logistics firms are keen to follow environmental regulations set in their areas of operation to avoid incurring penalties and other related costs. The second popular strategy is whether the organizations collaborate with stakeholders to ensure provision of services that do not compromise the environment which registered a mean score of 3.416, followed by whether the suppliers to the organization have to show compliance with particular regulations that protect the environment scoring a mean of 3.270. Whether the organizations sources their products and services from ISO certified suppliers and whether they carry out tests on its inputs such as fuels to ensure they are environmentally safe tied rank with means

of 3.166 each. Whether the organization gives feedback to suppliers on supplies that are not environmentally friendly ranked last with a mean of 3.125.

Table 8: Pollution prevention strategies

I. Pollution prevention				
Statement		**Mean**	**Std. Dev**	**Ranking**
1	The organizations collaborate with stakeholders to ensure provision of services that do not compromise the environment.	3.417	1.146	**2**
2	The suppliers to the organization have to show compliance with particular regulations that protect the environment.	3.271	1.162	**3**
3	The organization sources its products and services from ISO certified suppliers	3.167	1.277	**4**
4	The organization gives feedback to suppliers on supplies that are not environmentally friendly.	3.125	1.282	**6**
5	The organization carries tests on its inputs such as fuels to ensure they are environmentally safe.	3.1667	1.260	**5**
6	The organization complies with the environmental demands of the local authority	3.604	0.984	**1**
	Average mean	**3.292**		

Compliance with the local environment management authority is evidently important to retain business licenses and permits to operate while collaborating with stakeholders to ensure protection of the environment helps the organization set clear objectives and assign responsibilities to the stakeholders. The least adopted pollution prevention strategy, giving of feedback to suppliers on supplies that are not environmentally friendly, implies that that most organizations are not keen on following up with suppliers to give feedback on the quality levels of their supplies. The total average mean of 3.291 indicates that majority of total solution logistics service providers have adopted some, if not most of the pollution prevention strategies.

4.3.2 Product stewardship

This section highlights the extent to which total solution logistics service providers in Mombasa have adopted product stewardship in their businesses. To measure the extent to which these practices were adopted, a 5- point Likert scale was utilized with: 1 signifying No extent at all, 2- small extent, 3- moderate extent, 4-large extent and 5- very large extent.

Table 9: Product stewardship strategies

II. Product stewardship				
Statement		**Mean**	**Std. Dev.**	**Ranking**
1	The organization has invested in activities that ensure any waste after delivery is returned for recycling and reuse	3.313	1.274	**1**
2	The organization consumes waste and scrap internally	2.583	1.334	**8**
3	The organization creates market for waste products it cannot consume internally.	2.979	1.120	**3**
4	The organization has a waste handling policy e.g. waste sorting, increased use of recycled materials, and reducing waste amounts	2.604	1.364	**7**
5	The organization shares its environmental management techniques with other firms in the industry	2.667	1.226	**5**
6	The organization has a collection point for goods meant for recycling e.g pallets	2.625	1.178	**6**
7	There is departmental collaboration, communication and cooperation in product stewardship.	3.146	1.185	**2**
8	The Organization provides its customers with information and training regarding product stewardship.	2.938	1.311	**4**
	Average mean	**2.857**		

From indications on Table 9, whether the organizations have invested in activities that ensure any waste after delivery is returned for recycling and reuse scored a mean of 3.3125, ranking the most adopted Product stewardship strategy. Existence of departmental collaboration, communication and cooperation in product stewardship in the organization came second with mean of 3.146, meaning that, organizations that adopted product stewardship strategies, were keen on organization-wide collaboration to ensure success of the plan. Mean scores for organizations that created market for waste products they could not consume internally were at 2.979, making it the third best strategies in this category, followed by organizations that provide their customers with information and training regarding product stewardship, at a mean of 2.937. Whether the organizations shared their environmental management techniques with other firms in the industry reaped a mean of 2.667, making it fifth in popularity. Organizations with collection points for goods meant for recycling was at a mean of 2.625, while those that have waste handling policies and reduction of waste amounts came second last with a mean of 2.604. The least popular strategy for product stewardship was internal consumption of wastes and scraps by the organizations with a mean of 2.583.

This indicates that majority of the firms do not reuse waste product they produce and are likely to concentrate on deriving more benefits by reducing the amount of waste they produce. External pressure from stakeholders to adopt green strategies is also a key factor for total solution logistics firms if they are to operate competitively with other firms. This enables an organization reduce costs by saving on materials and gaining good reputation that enables the firm operate efficiently and effectively. The result also shows that logistics firms heavily outsource recycling activities as they do not want to invest in the activity, or they want to avoid the risks that come about with using recycled materials in their businesses.

4.3.3 Adoption of clean technology

This section highlights the extent to which total solution logistics service providers in Mombasa have adopted clean technology in their business processes. To measure the extent to which these practices were adopted, a 5- point Likert scale was utilized with: 1 signifying No extent at all, 2- small extent, 3-moderate extent, 4-large extent and 5-very large extent.

Table 10: Clean technology strategies

III. Clean technology				
Statement		**Mean**	**Std. dev.**	**Ranking**
1	The organization has invested in activities that ensure products are delivered using a green distribution system	3.188	1.249	**3**
2	The organization engages in energy conservation, fuel recovery and uses energy efficient equipment	3.563	1.128	**1**
3	The organization has included Clean Technology in its strategic planning process and gets commitment from senior managers	2.917	1.318	**5**
4	The organization engages in information gathering on trends in clean technology to assess their business process performance.	2.896	1.259	**7**
5	The organization has a policy that ensures equipment producing harmful emissions are serviced or written off	3.208	1.129	**2**
6	The organization adopts new technology that promotes greening	3.167	1.226	**4**
7	The organization trains its employees on Clean Technology principles	2.896	1.242	**6**
	Average mean	**3.119**		

Table 10 shows the results as follows; firms that engage in energy conservation, fuel recovery and uses energy efficient equipment had a mean score of 3.5625, followed by those that have a policy that ensures equipment producing harmful emissions are serviced or written off with a mean score of 3.208. Whether the organizations have invested in activities that ensure products are delivered using a green distribution system gained third position with a score of 3.186. The fourth in popularity went to whether the organizations adopted new technology that promote greening, at a mean of 3.167. Standing number five was whether the organizations have included Clean

Technology in their strategic planning process and acquired commitment from senior managers, with a mean of 2.916. The last place saw a tie between whether the organizations trained their employees on clean technology principles and whether they engaged in information gathering on trends in clean technology to assess their business process performance. They both managed a mean of 2.896

The results suggest that the organizations gives priority to energy saving and efficiency as a means of adoption of clean technology strategy. As much as firms would be interested in adopting green strategies, financial constraints restrict their level of investments. This is because implementing new green strategies may mean purchasing new and reliable machinery which are usually expensive and out of reach to many logistics firms in Mombasa.

4.3.4 Sustainability vision

This section highlights the extent to which total solution logistics service providers in Mombasa have a vision for sustainability in the plan and business processes. To measure the extent to which these practices were adopted, a 5- point Likert scale was utilized with: 1 signifying No extent at all, 2- small extent, 3-moderate extent, 4-large extent and 5- very large extent

Results around whether the organizations invested in Research and development to ensure sustainability in its processes and products emerged priority, scoring a mean of (3.2083333). This goes without saying that total solution logistics providers have invested in research and development functions of their organizations to ensure sustainability of business processes and green strategies. Coming second was whether the organizations have set clear sustainability goals and objectives at a mean of (3.125). Evidently, most of the organizations may not have adopted some of the strategies by the time of data collection but have clear goals and objectives about green strategies and sustainability. This is in itself, a commitment to adopt green strategies. Whether all stakeholders are aware and supportive of the organization's journey towards greening became third with a mean score of (3.125), indicating importance of sensitization and engagement to implementation of green strategies. Registered fourth was the organization's involvement in sustainability campaigns which managed a score of (2.9583333) and lastly, whether there are consequence management measures in place

to be applied in case a stakeholder/supplier frustrated the organization's sustainability efforts (2.75).

Table 11: Sustainability vision strategies

IV. Sustainability vision				
Statement		**Mean**	**Std. dev.**	**Ranking**
1	The organization has invested in Research and development to ensure sustainability in its processes and products	3.208	1.254	**1**
2	The organization has set clear sustainability goals and objectives	3.125	1.299	**2**
3	All stakeholders are aware and supportive of the organization's journey towards greening.	3.125	1.248	**3**
4	There are consequence management measures in place to be applied in case a stakeholder/supplier frustrates the organization's sustainability efforts	2.75	1.329	**5**
5	The organization is involved in sustainability campaigns either locally, globally or both.	2.958	1.237	**4**
	Average mean	**3.033**		

The last two indicate that even though the firms adopt green strategies, the level of weights and commitment accorded their implementation are still inadequate. Total logistics solution firms in Mombasa are clearly less futuristic when it comes to greening their businesses.

4.4. Relationship between green strategies and competitive advantage

4.4.1 Organization competitive advantage

This section highlights the level to which total solution logistics service providers in Mombasa consider themselves to have competitive advantage relative to other competing firms. To measure the extent to which an organizations has competitive advantage over others, a 5- point Likert scale was utilized with: 1 signifying No extent at all, 2- small extent, 3-moderate extent, 4-large extent and 5- very large extent.

Table 12: Competitive advantage

Competitive advantage				
Statement		**Mean**	**Std. deviation**	**Ranking**
1	Customer base compared to competitors	3.125	1.231	**3**
2	Profitability	2.625	1.248	**6**
3	Customer satisfaction and loyalty	2.917	1.164	**4**
4	Relative market share	2.854	1.321	**5**
5	Corporate/ brand image	3.292	1.129	**2**
6	Public and government goodwill	3.458	1.071	**1**
	Average mean	**3.045**		

Table 12 shows the results. Firms that supposedly realized a positive public and government goodwill scored a mean (3.458) and improved corporate brand image (3.291). On whether an upward trend in customer base compared to competitors was evident, a mean of (3.125) was scored, while the least competitive advantage indicators, customer satisfaction and loyalty scored a mean of (2.917), relative market share and profitability were at (2.854) and (2.625), respectively.

This implies that logistics firms have shifted their focus from the traditional model of pursuing profits to a model that aims at increasing market share by targeting to gain good corporate image. Environmentally safe services appeal to a wider customer base hence logistics companies aim at adopting green strategies to achieve a wider market share. Most of the firms in Mombasa are yet to fully invest in green strategies to enable maximum ROI.

4.4.2 Green strategies and Competitive advantage

A relationship between green strategies and competitive advantage had to be investigated and established whether it existed. The data was analyzed through a regression analysis to come up with the below deductions.

Table 13: ANOVA Table

ANOVA					
	df	**SS**	**MS**	**F**	**Significance F**
Regression	4	2253.20942	563.302355	1194.982926	0.000000000
Residual	43	20.2697467	0.47138946		
Total	47	2273.47917			

a. Dependent Variable: Competitiveness

b. Predictors: (Constant), Pollution prevention, Product stewardship, clean technology and sustainability vision.

From the ANOVA table above, the value of F statistic is 1194.983 which is greater than Fc =2.51 at 95% confidence interval. Since F=1194.983 >Fc=1.623755, we conclude that not all the coefficient estimates of the predictor variables are equal to zero. This implies that Pollution prevention, Product stewardship, clean technology and sustainability vision, have a relationship with and effect on firms' competitive advantage. This is further confirmed by the p value=0.000< 0.05 at α=0.05.

Table 14 Model Summary

Model	**R**	**R Square**	**Adjusted R Square**	**Std. error of the estimate**
1	0.99553215	0.99108426	0.99025489	0.686578079

a. Predictors: (Constant), Pollution prevention, Product stewardship, clean technology and sustainability vision.

From the model summary table above, the Adjusted R Square value is 0.99025489. This implies that 99.03% of the variation in the response variable, competitive advantage is explained by the model. This endorses model suitability and further indicates that there is a strong relationship between the response variable and the predictor variables. Adjusted R Square is used for reporting model fitness rather than R Square because Adjusted R Square value is controlled and does not increase when non-significant variables are added to the model. This is unlike R Square which increases indefinitely with increase in the number of predictor variables in the model.

A relationship between green strategies and competitive advantage was established. A multiple linear regression model was run and the results obtained were analyzed and interpreted.

Table 15 Model Coefficients Table

	Unstandardized Coefficient		**t Stat**	**P-value**
MODEL	**B**	**Standard Error**		
Constant	1.74869819	0.441802843	3.958096282	0.000278702
X1	-0.0417367	0.107463901	-0.38837896	0.699651921
X2	0.38148839	0.07694681	4.957819463	0.000011621*
X3	0.01735214	0.123186501	0.140860723	0.888637792
X4	0.54388886	0.16113328	3.375397428	0.001572018*

5% level of significance*

From the table above, we obtained coefficients' estimates of the model as shown below

$\beta 0 = 1.74869819$

$\beta 1 = -0.0417367$

$\beta 2 = 0.38148839$

$\beta 3 = 0.01735214$

$\beta 4 = 0.54388886$

We fit the above coefficient estimates in our model and obtain the model equation

$$Y = 1.74869819 - 0.0417367X_1 + 0.38148839X_2 + 0.01735214X_3 + 0.54388886X_4$$

Where:

Y = Competitive advantage $X1$ = Pollution prevention $X2$ = Product stewardship

$X3$ = Clean technology $X4$ = Sustainability vision

From Table 15, product stewardship and Sustainability vision were found to be statistically significant predictor variables at $\alpha=0.05$ level of significance with p-values 0.00001 and 0.00157 respectively. While pollution prevention and clean technology p-

values of 0.6997 and 0.8886 respectively were found not to have a statistically significant relationship with competitive advantage in the model at $\alpha=0.05$ level of significance. However, all the predictor variables except for pollution prevention had a positive relationship with the response variable implying that adoption of the green strategies led the firms to gain competitive advantage. From the model equation, each of the predictor variables has a relationship with the response variable and is interpreted as below:

Pollution prevention regression coefficient is -0.0417 implying that holding all other predictor variables constant, an increase in pollution prevention activities resulted in a shrinkage of the firm's competitive advantage by 0.0417. Product stewardship regression coefficient is 0.3815 implying that holding all other predictor variables constant, a unit rise in product stewardship activities resulted into a gain in the firm's competitive advantage by 0.3815. Clean technology regression coefficient is 0.0174 implying that holding all other predictor variables constant, a unit growth clean technology resulted in an growth in the firm's competitive advantage by 0.0174. Sustainability vision regression coefficient is 0.5439 implying that holding all other predictor variables constant, a unit increase in sustainability commitment resulted in a positive trend in the firm's competitive advantage by 0.5439.

From the analysis, it was found out that two of the predictor variables were statistically significant. However, apart from pollution prevention, all the other variables had positive relationship with firm's competitive advantage.

4.5 Discussion of findings

From the research results, it is evident that organizations that are globally owned, large in size and have many years of operations are more conscious of their impact on the environment and are therefore, more likely to show commitment to the protection of the environment. These organizations consists of those that find it necessary to invest in research and development to help gather information and recommend strategies to adopt. Such firms are more likely to win the confidence of their customers, the public and the government.

While trying to achieve the first objective of the study which was to establish the extent of green strategies adoption by total solution logistics service providers in Mombasa, it

became evident that, of the four independent variables analyzed, pollution prevention and clean technology strategies were the most adopted strategies by total logistics solution service providers in Mombasa. This means that the firms were keen on keeping up with regulations of the environmental authority in Kenya, NEMA, to keep off legal or political challenges that may arise as a result and for legitimization and acceptance as suggested in institutional and population ecology theories. Clean technology is also a means of enabling maintenance of equipment, thus longer life, lower depreciation and lowered costs. Most firms today focus on minimizing costs and maximizing revenues and will therefore, easily adopt such strategies that facilitate the optimization. Product stewardship and sustainability vision strategies were adopted by a smaller population of the total solution logistics firms who are probably well established in terms of financial turnover, global or international experience and the size of the organization. This was a clear show that logistics firms are still at infancy stages of commitment and adoption of green strategies.

As seen in previous studies, environmentally cognizant policies enable firms to moderate their total costs as well as gain competitive advantage such as growth in revenue, brand reputation and trust, among others. Similarly, this study established that competitive advantage is more likely to be gained by firms that adopted green strategies but in the context of total solution logistics firms, those that adopted clean technology stood to gain more advantage compared to those that adopted other green strategies. This can be attributed to the eventual benefits of energy efficiency and lesser emission processes which results to significantly reduced costs and improved efficiency of equipment. Generally speaking, objective two of the study was achieved by establishing that a positive relationship exists between adoption of green strategies and Competitive advantage of total solution logistics service providers in Mombasa.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter, findings from this study are summarized and conclusions provided. The research also presents recommendations on areas that were found to have gaps. Lastly, the researcher suggests on areas that need further research on this topic.

5.2 Summary

The aim of this study was to establish the relationship between competitive advantage and adoption of green strategies by total solution logistics service providers in Mombasa County, Kenya. The survey also sought to determine apparent benefits of adopting green strategies by these firms. This section draws conclusions from the research findings in this study.

Research results demonstrates that the majority of the businesses: had been in operation for over 10 years (33.3%), 37.5% of the firms were globally owned, 37.5 % earned a topline revenue of between one million and ten million Kenyan shillings and had between 10-50 employees (39.6%). 83.3% of the firms were registered with an environmental management body and 66.7% of the firms had established an environmental department, with only 31.3% having acquired environmental certification. All of the firms surveyed had adopted at least one of the green strategies. This shows that these firms had capacity and the will power to manage the environment.

The study also showed that the most popularly adopted green strategies was pollution prevention mostly featuring compliance with environmental management demands of the local authority, in this case, NEMA. Engagement in energy conservation, fuel recovery and uses energy efficient equipment was also popular followed closely by investments in Research and development to ensure sustainability in business process and existence of policy that ensured equipment producing harmful emissions were serviced or written off

The least adopted strategies were consumption of waste and scrap internally where, in most cases, the firms had no use for the scrap and wastes. Most organizations did not have a collection point for goods meant for recycling and recognized no need for this

arrangement. Consequence management measures was least of the firm's worries and was amongst the least scored. The perception by the logistics firms are that local environmental certification do not add value to their business and are unnecessarily expensive hence the reason most firms did not pursue accreditation.

5.3. Conclusions

The study determines that concern for environment and organizational sustainability are increasing and that respondents are aware of the impacts of green strategies but are not perfectly familiar with how the impact trickles down to affect their competitive advantage, hence reluctance in adoption. This conclusion agrees with previous studies done before expounding on how green strategies are positively correlated with competitive advantage, in the long term. As stated earlier, being green is not easy but, motivated by forthcoming regulations, consumer pressure, and directives from corporations, more companies are working towards greening and sustainability efforts (Partridge, 2008).

The study also concludes that most total solution logistics service providers in Mombasa are still at the infant phase of adopting green strategies and some of the firms had subscribed to the environmental bodies. A significant number of these firms were subject to environmental management audits but most firms have been left to run their businesses independently without close monitoring on their operational efficiency.

The study concludes that most logistics firms are running on a model that aims at keeping business running costs at the minimal level hence the low adoption of green strategies. Perceived benefits of green strategies are outweighed by the monetary investment of plant and machinery to support the cause. The need to curtail costs was also found to be a common inspiration force for adoption of green strategies (Ahuja, Hart & Gautam, 1996).

5.4 Recommendations

Founded on the conclusion drawn, the researcher made the following deductions: There is need to increase awareness on green strategies on the enhancement of overall performance in the logistics industry in Mombasa, this will help reduce the environmental degradation associated with logistics firms and the Kenya ports authority. There is also need to adopt various green policies through government

legislations. Environmental bodies should sensitize the players on importance of compliance with environmental regulations and should invest more on monitoring procedures to seal gaps that exists in the industry with regard to greening. The government should also increase more environmental regulators in the logistics industry and make the process less expensive and less tedious. Firms also need to ensure they utilize recycled items when procuring their inputs as opposed to using cheaper imports which degrade the environment. Finally, logistics firms in Mombasa should consider adopting greening policies fully so as to make them competitive amid emerging technology and trends.

5.5 Recommendations for Further Research

The results of this study can be applied to propose several directions for imminent research. A field study can center on investigating demands by customers and whether there is any preference in demand of services from companies that adopt green strategies in comparison to those that do not have any indication of adopting green strategies. Additionally, senior managers need to develop greening skills and knowledge in order to effectively manage a green organization. They need to focus on improving the environment in order to improve organizational performance. The researcher also recommends further research on the costs related to greening and the return on investment of adopting green strategies. Greening is a new concept that needs new policies to assist firms to have a harmonized structure that enables uniformity in operations.

5.6 Limitations of the Study

This research was limited by the element of some of the respondents deeming the information required as confidential. It was therefore, difficult to convince them that the highest level of confidentiality would be maintained and as a result, some questions were left unanswered. Importantly, the study was limited to a specific category of logistics service providers in a specific geographical area. Additional studies should be done More study should be extended to other categories of players in the industry across different geographical regions. Lastly, time and resources were limited to the researcher. The drop and pick later method of questionnaire administration proved to be time consuming and the data collectors were forced to record the responses together with the respondents.

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APPENDICES

Appendix 1: Research questionnaire

Introduction

This questionnaire has been designed for the sole purpose of collecting data on the application of green strategies by total solution logistics service providers Mombasa, Kenya. The data collected will be treated with a very high degree of confidentiality and it is meant for academic purpose only.

Green strategies are policies crafted and adopted by organizations as their commitments environmental responsibility.

Please fill the blank spaces and tick appropriate choices/boxes

PART I: General information about the firm.

1. For how long has your organization been in operation?
   - **a)** 1 – 3 years
   - **b)** 3 – 5 years
   - **c)** 5 – 10 years
   - **d)** Over 10 years
2. Describe the ownership structure of your organization;
   a) Locally owned sole proprietorship
   b) Locally owned partnership/corporation
   c) Global/international ownership
   d) Local and global partnership
   e) Parastatal organization
3. What is your current work force capacity?
   a) 1 – 10 employees
   b) 11- 50 employees
   c) 50 – 100 employees
   d) Over 100 employees
4. Select the range of your organization's monthly financial turnover in Kenyan Shillings.
   a) 100,000 – 1 million
   b) 1million – 10 million

c) 10 million – 100 million

d) Over 100 million

5. Which services does your company offer?

    a) Freight forwarding

    b) Warehousing

    c) Transportation

    d) Repackaging & Reworking

    e) Logistics consultation

6. Does your organization have an environmental management function/ Department?

    Yes [ ] No [ ]

7. Does your organization have any green strategy policies in place?

    Yes [ ] No [ ]

8. Is your organization registered with any environmental management bodies?

    Yes [ ] No [ ]

If yes, kindly state the environmental management bodies you are registered with.

……

……

……

9. Does your organization have any environmental certification?

    Yes [ ] No [ ]

If yes, kindly state which certification your organization possesses?

……..

……...

……

PART II: Green strategies.

Please indicate the extent to which your firm has adopted the following Green strategies.

[1] No extent at all **[2]** Small **[3]** Moderate **[4]** Large **[5]**Very large extent

I. Pollution prevention						
	Statement	**1**	**2**	**3**	**4**	**5**
1.	The organizations collaborate with stakeholders to ensure provision of services that do not compromise the environment.					
2.	The suppliers to the organization have to show compliance with particular regulations that protect the environment.					
3.	The organization sources its products and services from ISO certified suppliers					
4.	The organization gives feedback to suppliers on supplies that are not environmentally friendly.					
5.	The organization carries tests on its inputs such as fuels to ensure they are environmentally safe.					
6.	The organization complies with the environmental demands of the local authority					

II. Product stewardship						
	Statement	**1**	**2**	**3**	**4**	**5**
1.	The organization has invested in activities that ensure any waste after delivery is returned for recycling and reuse					
2.	The organization consumes waste and scrap internally					
3.	The organization creates market for waste products it cannot consume internally.					
4.	The organization has a waste policy as to waste sorting, increased use of recycled materials, and reducing waste amounts					
5.	The organization shares its environmental management techniques with other firms in the industry					
6.	The organization has a collection point for goods meant for recycling e.g pallets					

7.	There is departmental collaboration, communication and cooperation in product stewardship.					
8.	The Organization provides its customers with information and training regarding product stewardship.					

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III. Clean technology						
	Statement	**1**	**2**	**3**	**4**	**5**
1.	The organization has invested in activities that ensure products are delivered using a green distribution system					
2.	The organization engages in energy conservation, fuel recovery and uses energy efficient equipment					
3.	The organization has included Clean Technology in its strategic planning process and gets commitment from senior managers					
4.	The organization engages in information gathering on trends in clean technology to assess their business process performance.					
5.	The organization has a policy that ensures equipment producing harmful emissions are serviced or written off					
6.	The organization adopts new technology that promotes greening					
7.	The organization trains its employees on Clean Technology principles					

IV. Sustainability vision						
	Statement	**1**	**2**	**3**	**4**	**5**
1.	The organization has invested in Research and development to ensure sustainability in its processes and products					
2.	The organization has set clear sustainability goals and objectives					
3.	All stakeholders are aware and supportive of the organization's journey towards greening.					
4.	There are consequence management measures in place to be applied in case a stakeholder/supplier frustrates the organization's sustainability efforts					
5.	The organization is involved in sustainability campaigns either locally, globally or both.					

PART III – The organization's competitive advantage

Please indicate the extent to which your firm indicates a gain of competitive advantage.

[1] No extent at all **[2]** Small **[3]** Moderate **[4]** Large **[5]** Very large extent

Competitive advantage						
	Statement	**1**	**2**	**3**	**4**	**5**
1.	Customer base compared to competitors					
2.	Profitability					
3.	Customer satisfaction and loyalty					
4.	Relative market share					
5.	Corporate/ brand image					
6.	Public and government goodwill					

Appendix 2: List of total solution logistics firms in Mombasa

1	Acceler Global Logistics	33	Kate Freight
2	Access Shipping Agency	34	Kenfreight (E.A) Ltd
3	Aeromarine	35	Kuehne + Nagel
4	Ainushamshi	36	Logistics 365
5	Alpha Logistics Ltd	37	Mackenzie Maritime (E.A) LTD
6	Aramex Kenya Ltd	38	Mara Shabba Logistics
7	Ataco Freight	39	Mbaraki Port Warehouses
8	Bahari Forwarders Ltd	40	Mitchell Cotts Freight (K) Ltd
9	Blue Anchor Shipping	41	Mombasa Times Ltd
10	Bollore Logistics	42	Muranga Forwarders Ltd
11	Bonfide Logistics	43	Mutiple Solutions
12	DSV Air & Sea Ltd	44	Najmi Clearing & Forwarding
13	Damco Logistics	45	Panal Freighters
14	DAP Logistics	46	Pentagon Freighters
15	DB Schenker Ltd	47	Ponderosa Logistics
16	Deccan Freight	48	Principal Forwarders Ltd
17	DHL Global Forwarding	49	Rais Shipping
18	Dodwel East Africa	50	Rapid Kate Services
19	East African Rail Handlers Ltd	51	Reliable Freight Services
20	East Global Logistics	52	Seabase Solutions
21	Logwin Air & Sea	53	Siginon Group
22	Eri Kenya Ltd	54	Spedag Interfreight
23	Export Consolidation Ltd	55	Speedex Logistics Ltd
24	Express Shipping & Logistics	56	Swift Royal Conveyors Ltd
25	Freight Forwarders	57	Threeways Shipping Ltd
26	Freightwell Express Ltd	58	Seedcol Logistics
27	Gate way Marine Services	59	Transoceanic Projects
28	Genuine Freight	60	Ufanisi Freighters
29	Habo Agencies	61	Unigroup
30	Indus Logistics Ltd	62	United Warehouses Ltd
31	Intraspeed Arcpo	63	Yalfa Cargo
32	Jihan Freighters		

Source: Federation of East African Freight Forwarders Association's Directory.

Appendix 3: Timeline for research activities

Item	Timeline			
	Jul.	**Aug.**	**Sept**	**Oct.**
Proposal Development				
Data Collection				
Data Analysis				
Report compilation				

Appendix 4: Project budget

ITEM DESCRIPTION	UNIT COST(Kshs)	TOTAL (Kshs)
Instrument Pre-test	2 days @8,000	8,000
Primary data collection	5 days@ 1000/ 2 people	10,000
Data Analysis	5 days@6000	30,000
Report writing & presentation	7days@ 3000	21,000
Stationery	8000	8,000
Total		77,000

Violet A. Onyango,
P.O. Box 81511-80100,
Mombasa.

September, 2016

Dear Respondent,

RE: RESEARCH QUESTIONNAIRE

This questionnaire (attached) is designed to gather information on the 'Application of green strategies and competitive advantage of total solution logistics service providers in Mombasa.

This study is being carried out for a management project paper as a requirement in partial fulfillment of the Master of Business Administration, University of Nairobi

Please note that this is strictly an academic exercise towards the attainment of the above purpose. You are hereby assured that the information will be treated with the strictest confidence.

Your co-operation will be highly appreciated.

Thank you for your anticipated kind response.

Yours Sincerely,

Violet A. Onyango