

**INNOVATIVE SUPPLY CHAIN MANAGEMENT
PRACTICES AND ORGANISATIONAL PERFORMANCE
OF OIL MARKETING COMPANIES IN KENYA**

SHEM M. SHALAKHA

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DECLARATION

This research project is my original work and has not been presented to any other university for an award of a degree, diploma or certificate. No section of this research can be produced, transmitted or retrieved without the author's consent or the University of Nairobi

Signature.....

Date.....

Shem Museve Shalakha

D61/71053/2014

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

Signature.....

Date.....

Michael Chirchir

Department of Management Science

School of Business

University of Nairobi

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Finally, I thank my Almighty God who made all this possible.

DEDICATION

This project is dedicated to my dear parents Mr. and Mrs. Munialo Shalakra for laying a strong foundation to my life. My special dedication to my wife Phyllis Shem, my dear sons Kyle and Shemaiah who are always the source of my strength, joy and desire to excel academically. I thank God for having you in my life.

ABSTRACT

Supply chain innovations have received growing attention amongst organizations. Supply chain innovations acts as a catalysts for improved efficiency and competitiveness. To achieve value creation in supply chain management, most oil companies have realized the need for innovation. The objectives of this study were to determine the innovative supply chain practices used by Oil marketing companies in Kenya, to establish the relationship between innovative supply chain practices and performance of Oil Marketing Companies in Kenya and to determine the challenges facing implementation of innovative supply chain management practices by Oil Marketing Companies in Kenya. To achieve these objectives the study used a descriptive survey. The population of the study consisted of oil marketing companies in Kenya. A census approach was used in all the 36 oil marketing companies in Kenya. Data was collected using a structured questionnaire from all the senior procurement officers and their assistants. Out of the 36 questionnaires distributed, 32 were returned to the researcher. This represents a response rate of 89% which was considered sufficient for making generalization of the whole population. Data was analyzed using descriptive statistics and a regression model as per the objectives of the study. The findings found that mass customization, integration, e-procurement, just in time and outsourcing were implemented to a very large extent. Reverse logistics practices were used only to a moderate extent in oil marketing companies in Kenya. The regression results concluded that innovative supply chain management practices led to improved organizational performance of oil marketing companies. Further, it was revealed that the key challenges facing implementation of innovative supply chain management practices by oil companies were; lack of proper training, failure to invest in research and development, failure to invest in modern technologies and lack of commitment by the top management. The limitation of this study was that time factor. Primary data collection consumes a lot of time. The researcher had to prepare in order to handle the different demands of the processes and at the same time, manage time effectively. The study recommends the need for investigating on appropriate ways to increase formalization of research and development programs in the oil industry that will establish a platform to build and nurture innovation in supply chain management in order to enhance value creation.

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ABBREVIATIONS AND ACRONYMS

ERC	Energy regulatory Commission
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KPC	Kenya Pipeline Corporation
KPRL	Kenya Petroleum Refineries Ltd
MNCs	Multinational Corporations
NIAT	Net Income after Tax
OTS	Open Tender System
ROA	Return on Assets
ROCE	Return on Capital Employed
ROI	Return on Investment

CHAPTER ONE: INTRDOCUTION

1.1 Background of the Study

Today organizations are realizing that their level of innovativeness in supply chains is an integral part of strategic success and long-term survival. Supply chain innovation underpins the achievement of sustainable competitive advantage and an ability to respond effectively to rapidly changing markets as organizations strive to be innovative despite intense technological uncertainty. Innovativeness is seen as a complex process that handles environmental and technological uncertainty to seek and adopt new processes, ideas, products and technologies for satisfying customers. Gunasekaran and Spalanzani (2011) assert that enhanced innovativeness facilitates more sophisticated management procedures and operations in information and physical flow along the supply chain.

To be successful, innovations have to become best practices upon which all supply chain actors capitalize and create value. Innovative supply chain management is seen as a source of knowledge management for all the involved supply chain actors. Innovative supply chain management improves company-partner practices and creates value for customers. The primary motivation for innovative supply chain practice is to increase the organizational performance of the company through customer satisfaction and cost reduction (Batenburg and Rutten, 2003).

Innovativeness assists supply chain managers to foster the development of information and progressive technologies using innovative operations to improve efficiency and service effectiveness. Supply chain innovation is used a toll for transforming the organization as a response to internal or external environmental change. Brettel and

Neubauer (2011) argues that innovative products are cost friendly and of high quality. Organizations that utilize supply chain innovation tailor their products and services in a manner that meets the needs of their customers in terms of cost, quality and flexibility. This attracts more customers leading to increased sales and increased organizational performance. Innovative firms succeed in cutting costs since they utilize modern technologies in their processes. This lowers the costs of productions and hence produces quality goods and services at a cheaper cost. This makes the goods and services affordable to the customers thus attract many customers leading to increased sales and organizational performance.

1.1.1 Innovative Supply chain Practices

Lavastre, Ageron and Spalanzani (2011) define innovative supply chain practices as a set of methods and tools that are previously inexistent in companies or their subsidiaries that will be generated, developed and deployed within supply chains to tackle different supply chain issues such as quality, costs and lead-time. Some of the supply chain innovations include: logistics network reconfiguration, Just in Time (JIT), mass customization, reverse logistics, integration and outsourcing. These practices are unique and difficult to imitate by competitors, they enable the firm to gain a competitive edge through utilizing its core competence.

Innovative supply chain practices enable companies to create value for their customers and improve their competitiveness and the performance of the whole supply chain (Chan and Qi, 2003). The importance of innovative supply chain practices is that they assist the organization to create value for their customers and improve competitiveness and

performance of the whole supply chain. Organizations use innovative supply chain practices to be the best and unique in the market through providing competitive products and services that are flexible, differentiated, cost friendly and value adding to meet customer expectations.

1.1.2 Organizational Performance

According to Kaplan and Norton (2001) organizational performance refers to how well an organization is doing to reach its vision, mission, and goals. Assessing organizational performance is a vital aspect of strategic management. Executives must know how well their organizations are performing to figure out what strategic changes, if any, to make. Performance is a very complex concept, however, and a lot of attention needs to be paid to how it is assessed. Organizational performance comprises the actual output or results of an organization as measured against its intended outputs (or goals and objectives).

According to Stock and Mulki (2009) organizational performance encompasses three specific areas of firm outcomes: financial performance (profits, return on assets (ROA), return on investment (ROI), product market performance (sales, market share.); and shareholder return (total shareholder return and economic value added).

Operational performance is part of the organizational performance measures that demonstrates the fulfillment of operational goals within different value chain activities that might lead to subsequent organizational performance (Kaplan and Norton, 2000). The key indicators include growth in market share, product quality, patent filings and marketing effectiveness. In contrast, organizational performance can also be defined as

the economic outcomes resulting from the interplay among an organization's attributes, actions and environment (Richard, 2009).

The balanced score card is the most popular tool used to measure organizational performance. It measures track activities in four main perspectives to give a more balanced evaluation of an organization's performance. These perspectives are namely: financial perspective, internal process, innovation & growth perspective and customer perspective (Kaplan and Norton, 2001).

1.1.3 Oil Marketing Companies in Kenya

Kenya is a net importer of petroleum products and has a refinery owned and managed by the Kenya Petroleum Refineries Ltd (KPRL) currently out of service. According to ERC (2014) there are 36 registered oil companies in Kenya (See Appendix II). The sector consists of over 30 oil importing and marketing companies comprising of five noteworthy organizations namely Shell (Vivo), Total, Kenol Kobil, Oil Libya, Gulf and other emerging oil companies which include the Government owned National Oil Corporation of Kenya (ERC Website). The industry therefore employs a significant number of employees. It also presents a unique scenario with most of the major players being MNCs.

The oil business is normally divided into three noteworthy segments: upstream, midstream and downstream. Midstream operations are normally included in the downstream classification. The first part covers the exploration, production and transportation of unrefined petroleum and gas to the point of transformation into final products (mainly refineries) (Ministry of Energy, 2014). The downstream activities deal

with the processing of unrefined petroleum in refineries, the marketing and distribution activities of all the oil derived products, Raed et al. (2006). Petroleum is Kenya's main source of commercial energy and over the years has accounted for about 80% of the country's commercial energy requirements. The local demand for the various petroleum fuels is at an average of 2.5 million tons per year, entirely imported from the Gulf, either as crude oil for processing at the now defunct Kenya Petroleum Refineries Limited or as refined petroleum products ready for sale, Nairobi Business Daily (2010).

Kenya Institute for Public Policy Research and Analysis (KIPPRA) (2011) indicated that the oil marketing sector in Kenya has had a great deal of difficulties. The situation in Kenyan oil industry and its environment has been worsened by the introduction of stringent tax regimes by the Kenya Revenue Authority (KRA). This requires upfront prepayment of 100% taxes on oil imports. 70% of the fuel sold locally used to be refined by the Kenya Petroleum Refineries Limited (KPRL) while 30% was imported as fully refined until the closure of KPRL. Currently the country only imports refined oil products on which 100% duty payment is levied upfront. The government introduced the Open Tender System (OTS), which means that all the crude oil imported is supplied by one supplier to minimize costs and level the retail prices. Oil companies are then invited to bid for the delivery and the company with the lowest bid automatically wins the tender to import the crude and have it discharged into KPC tanks (Ministry of Energy, 2014).

1.2 Research Problem

Innovation is an issue of great concern to companies seeking to compete with international markets. Supply chain innovations have received growing attention amongst organizations. Supply chain innovations acts as a catalysts for improved efficiency and

competitiveness (Cao and Zhang, 2011). However, most organizations lack innovation capacity to support and facilitate successful supply chain innovation. To survive in the current global environment companies facing normal market pressures constantly seek to create a competitive advantage to improve their organizational performance. According to Bello and Sangtani (2004) innovation is frequently a source of competitive advantage as it creates higher value for customers who are increasingly exigent, demanding high quality products at low price within a given time.

The oil industry in Kenya is competitive due to the growing demand for oil and petroleum products. Oil marketing companies supply oil in Kenya and other petroleum products locally and in the region. They undergo an open through tender system where the oil marketing companies with the most competitive quote imports on behalf of the industry. This process is coordinated by the ministry of energy (Munyasya, 2014). To survive in the oil industry, oil companies should consider investing on innovation to improve efficiency and effectiveness in their supply chain management systems.

Huang and Liu (2014) examined supply chain integration and suppliers performance relationships. The study sampled 50 manufacturing firms in Beijing. The study found that use of modern technologies led to improved productivity. Rhee and Lee (2010) studied the drivers of innovativeness in supply chain and performance of SMEs in South Korea. The study used descriptive statistics and the results concluded the innovative practices used by SME's included mass customization and Just In Time. Roy and Wilkinson (2004) investigated the role of supply chain relationships in innovation. The findings revealed that supply chain relationship and partnership was the cornerstone of innovation is supply chain.

Miyare (2014) studied supply chain management practices and organizational performance of Kenolkobil Limited. The findings depicted that supply chain management practices were strongly related to organizational performance. Livohi (2012) found that performance measurement was used as a tool for enhancing performance of OMCs'. Barua (2013) investigated the challenges facing supply chain management in the Oil marketing companies in Kenya. The study found that the challenges were as follows; transportation, equipment, communication, suppliers, innovation and finances.

From the above studies, none has examined innovative supply chain practices and organizational performance of oil marketing companies in Kenya. This study sought to bridge this gap by attempting to find answers to the following research questions: What are the innovative supply chain management practices used by Oil marketing companies in Kenya? What is the relationship between innovative supply chain management practices and organizational performance of Oil Marketing Companies in Kenya? And what are the challenges facing implementation of innovative supply chain management practices by Oil Marketing Companies in Kenya.

13. Research Objectives

The objectives of the study were:

- i. To determine the innovative supply chain management practices used by Oil marketing companies in Kenya.
- ii. To establish the relationship between innovative supply chain management practices and performance of Oil Marketing Companies in Kenya.

- iii. To determine the challenges facing implementation of innovative supply chain management practices by Oil Marketing Companies in Kenya.

1.4 Value of the Study

The study will be valuable to the Energy Regulatory Commission (ERC) with regard to how they can promote some of the innovative supply chain practices to improve organizational performance. This will enable them to take advantage and make maximum use of modern technologies for example information communication technology.

The government of Kenya might be interested in the findings of this study since its findings will provide information of the innovative supply chain practices not implemented by OMCs' but might be useful in enhancing organizational performance of the firm. Therefore, the government can set policies that encourage local firms to adopt innovative supply chain practices to boost their profits.

This study adds to the existing literature on the innovative supply chain management practices to the contemporary competitive environment that is innovation driven. The reader will understand the challenges that OMC's face while implementing innovative supply chain management practices. Researchers interested in this line of study or related topics might use the findings of this study as a point of reference for further research.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter covers the innovative supply chain practices, theoretical framework, the relationship between innovative supply chain management practices and organizational performance, the challenges facing implementation of supply chain management practices, summary of the literature review and knowledge gaps.

2.2 Innovative Supply Chain Management Practices

There are various innovative supply chain management practices used by firms to gain competitiveness in terms of improved customer satisfaction and cost effectiveness. These practices include: mass customization, e-procurement, integration, reverse logistics and just in time.

2.2.1 Mass Customization

Mehra and Inman (2014) maintain that mass customization is an innovative supply chain management practice that involves tailoring products and services according to the specific customer needs. The systems aggregate such kind of individual orders and schedules picking, assembly or production. This improves efficiency since the customers can conveniently get products and services that suites their needs.

Dowlatshahi (2012) asserts that mass customization is a common practice among the developed countries; customer needs keeps on changing hence it is imperative for the firms to cope with the demands of the market. This can be achieved through developing and designing competitive products that meet the following attributes namely: flexibility, convenience, cost effectiveness and improved value. Some of the benefits of mass

customization is that it minimizes stock-out costs and holding costs of the firm since goods are produced upon requisition by customers.

2.2.2 E-procurement

E-procurement is the use of internet-based information communication technologies (ICTs) to execute individual or all stages of procurement process including sourcing, negotiation, ordering, receipt and post purchase review (Croom and Brandon-Jones, 2004). There are various forms of e-procurement that concentrate on many stages of procurement process for instance e-tendering, e-marketplace, reverse auction, and e-catalogue purchasing. E-procurement also serves an end-to-end solution that integrates and streamlines many procurement processes throughout the organization. The internet has enabled firms to integrate their logistics and procurement systems that were previously conducted in each and every country that they operate.

Robinson (1999) identified the importance of e-procurement in cost saving, improved efficiency and single data entry. Use of e-procurement system makes its possible to monitor and measure orders and their details such as: improved standardization of processes, removal of non-value adding activities. This also minimizes paper work and improved efficiency in order approval and processing of documents.

2.2.3 Integration

One of the information systems that assists firms to integrate their functions and activities include: Electronic Data Interchange (EDI) is a system that integrates business processes hence provide long-term customer and supplier relationships a true spirit of partnership. This enables the firm to mitigate costs, improve placement of orders among others. Most

businesses have realized that time and cost savings is achieved by having a link with major suppliers through private networks such as electronic data interchange.

According to Lambert (2011) enterprise resources planning (ERP) system is part of the integrated supply chain management system of an organization that integrates all the supply chain partners. Watson and Zhang (2005) argue that an enterprise resource planning package is a database that allows a company to develop and store data that can be used in all the applications. This improves information sharing across the supply chain partners and minimizes communication costs leading to improved supply chain performance.

2.2.4 Just in Time

Mehra and Inman (2014) define just-in-time (JIT) as an operating concept designed to eliminate waste. The goal for just in time is to produce goods and services without wastage. This is achieved by testing each step in a process to determine if it adds value to the product or to the service. Firms that use just-in-time concept have minimum inventories by having each part delivered when it is needed, where it is needed, and in the quantity needed to produce the product.

Song and Zipkin (2011) explains that just-in-time system enables firms to operate efficiently with the least amount of resources hence improve quality, minimize inventory levels and provide maximum motivation to solve problems as and when they occur. Other advantages of this method are that it minimizes the cycle time since goods are produced upon requisition by the customer. This increases cost savings and competitiveness since

customers get the right product in terms of quantity, quality and value based on their requirements.

2.2.5 Reverse Logistics

Reverse logistics is part of the innovative supply chain management practice that aids firms in costs savings through use of environmental friendly products that require minimal processing compared to manufacturing a completely new product. A formalization process is essential in minimizing costs of a firm by defining the rules and procedures in determining whether products should be scrapped, discarded, repaired, overhauled or sold in a secondary market. This process is essential in cultivating production of environmental friendly products by manufacturing firms to effectively compete against their rivals (Dowlatshahi, 2005).

Jack, Powers and Skinner (2010) maintain that reverse logistics enables the firm to improve its agility. Some firms hold more inventory compared to the market demand. If they can quickly disposition this material, and perhaps even receive some of its cost back, their ability to be successful in the marketplace increases. Reverse logistics can even be strategic. Good reverse logistics practices can make a firm more competitive by reducing the customer's risk when buying a product, because the customer knows that the product can be returned easily. It is clear that most customers prefer reduced risk and will include consideration of transaction risk when selecting a supplier.

2.2.6 Outsourcing

Outsourcing is an arrangement in which one company provides services for another company that could also be or usually have been provided in-house. Outsourcing is a

trend that is becoming more common in information technology and other industries for services that have usually been regarded as intrinsic to managing a business. Outsourcing is one of the innovative supply chain management practices used by organizations to improve efficiency and effectiveness in supply chain management (Stewart, 2005).

Stewart (2005) argues that most outsourced organizations have employees who are experienced in the field of supply chain management. Outsourced firms utilize modern technologies for example information communication technology (ICTs) that integrate business processes and systems. Outsourcing organization benefits in the following ways: professional services, time and cost saving, improved value for goods and services delivered and reduced cycle time.

Outsourcing enables the organizations to focus on its core activity and maximize on its core competence for improved organizational performance. Through outsourcing, an organization is able to explore a wider variety of options within a short period of time. Most of the outsourced organizations have the capacity to research a wide variety of ideas this enable firms to explore options which could potentially open-up more opportunities for developing new products thus expanding the market share and improved organizational performance (Ketchen and Hult, 2007).

2.3 Theoretical Framework

This provides a critical review of the theories that support the relationship between innovative supply chain management practices and organizational performance. These theories include: Knowledge-based view and Resource-based view.

2.3.1 Knowledge-Based View

Knowledge-based view considers intangible resources of organizations. According to stock (2007) this theory looks at various dimensions such as organization learning, organizational capabilities and competencies. It promotes sharing of knowledge as a tool for improving efficiency and value creation. Information is power, the organization that cultivates a culture of sharing information is able to know and understand its customer needs (Hult, 2007). This helps in tailoring products and services that add value to the customers more efficiently, to meet their needs. According to Ketchen and Hult (2007) supply chain collaboration is one of the supply chain practice that involves sharing of information with the suppliers to create more value for goods and services delivered (Anand and Ward, 2004).

Hult, Ketchen and Slater (2004) applied the knowledge-based view to the information process and knowledge development in organizational supply chain performance. The results revealed that use of information process and knowledge development led to reduction in cycle time and cost reduction hence improved supply chain performance.

The relevance of this theory with regard to the objective of this study is that it demonstrates innovation in supply chain management is essential in improving the quality of products and services offered by firms. This enables the organization to meet the growing needs of their customers more conveniently in manner that meets customer satisfaction. This enhances the firm's competitiveness (Anand and Ward, 2004).

2.3.2 Resource-Based View

Resource-based view is an organizational theory mostly concerned with the economic aspect of operations of organizations. stock (2007) posit that more understanding of the value of systems in the organization as it puts more emphasis on the significance of knowledge as a factor of production play a pivotal role in contributing towards innovation in a supply chain management system. Lavassani (2009) identified two main schools of thought in the development of resource-based view. These schools are namely: the modern school of thought and the classical school of thought. The classical school of thought describes that to achieve competitive advantage against its rival's organizations must develop core competence by making maximum use of their available resources. The critiques of this theory argue that organizations may utilize their core competence and fail to achieve competitive advantage over their rivals. More attention has been paid to the application of resource Based view in the organizational supply chain management during the past decade (Movahedi and Kumar, 2009).

Morash and Lynch (2002) used resource based theory in the study of global supply chain capability and performance. The findings revealed that resources were used as a catalyst for enhancing organizational capabilities and global competitiveness. Gold, Seuring and Beske (2009) further reviewed the application of resource-based view to inter-organizational relations of businesses. The results showed that organization depends on resources from both the internal and external environment. To succeed in supply chain management, the firm has to establish good relationships with its suppliers to enhance its reliability on on-time delivery of goods and services. The proponents of this theory have argued that there are no specific strategies for acquiring resources that are essential for

growth and competitiveness. The organization should make maximum use of its internal resources and still source more resources from the external environment to gain core competence.

Innovative supply chain practices can be a resource to the organization if it protected against any duplications by the competitors. Innovation enables the firm to gain core competence that is distinctive and rare so that competitors are unable to imitate, substitute or reproduce. Firms that adopt innovative supply chain practices gain competitive advantage against their competitors through increased efficiency and effectiveness in their supply chain. Distinctive competencies refer to all the things that make the business a success in the marketplace. Innovation requires a huge investment in technology and proper structures to support its implementation. This theory demonstrates how an organization can maximize on its core competence to gain competitive advantage. Both intangible and tangible resources are important to realize this goal (Merlino and Testa, 2005).

2.4 The Relationship between Innovative Supply Chain Management Practices and Organizational Performance

To meet customer needs companies must find new sources of competitiveness and engage in unceasing innovation. These innovations can either be incremental or radical. Radical innovations require implementing completely new knowledge that renders obsolete the existing knowledge. This kind of innovation is difficult to imitate by competitors since the firm utilizes its core competence and capabilities that are unique as compared to that of competitors. This attracts more customers, more sales and hence improved organizational performance (Cao and Zhang, 2011). On the contrary,

incremental innovations introduce minor changes and adaptations gradually over a period of time.

Product and service innovations, like developing high-tech products or value-added services, are means by which companies are able to cope with competitors and international pressure. Caria and Guerini (2007) indicates that to achieve product development in an uncertain environment, communications and coordination between members of the supply chain has to be intensive. Indeed, relationships that companies develop with their suppliers and customers can ultimately be considered as competitive tools which contribute to improved organizational performance. This conforms to a study conducted by Huang and Liu (2014) that examined supply chain integration and supplier's performance relationships of manufacturing firms. The findings revealed that adoption of modern technologies led to improved organizational performance.

According to Roy and Wilkinson (2004) innovative supply chain focuses on relentless improvement of the supply chain cost structure through standardization and simplification. This improves customer satisfaction and lowers materials costs. With innovative supply chain, an organization can collaborate with business partners through integration of data and processes. This improves information sharing and thus minimizes communication costs leading to improved decision making. This enables the firm create alignment around common business goals that invent new methodologies, tools and processes to improve efficiency and performance of the firm.

Batenburg and Rutten (2003) explains that innovative supply chain practices ensures continuous improvement of supply chain functions which leads to competitive advantage

and differentiation of products and services to meet the growing and changing needs of customers. Organizations that adapt innovative supply chains utilize innovative technology in their systems and processes. This enables the organization to improve procurement workforce productivity and hence improve organizational performance.

2.5 Challenges facing Implementation of Innovative Supply Chain Management Practices

There are various challenges that face implementation of innovation supply chain management practices. Some of these challenges include inadequate finances to invest in modern technologies for example information communication technology (ICT). Jack, Powers and Skinner (2010) maintain that ICT play an important role in innovation of supply chain management. Information communication technology allows sharing of information which is an essential component in sharing of new ideas and concepts. Information sharing and concepts act as catalysts towards successful implementation of innovation of supply chain management. Innovation in supply chain highly depends on ideas and concepts that can best be transmitted through use of information communication technology to improve the way of doing things. Most firms that have succeeded in the implementation of innovation in supply chain management invest hugely in modern technologies for example information communication technology. ICT improves systems and processes; it enables firms to execute their operations in a more efficient way, at a reduced cost.

The other challenge that prevents organizations from succeeding in implementation of innovative supply chain practices is lack of competent personnel and professionals in the field of supply chain management. In most developing economies, the level of innovation

is quite low compared to the developed countries. Stock and Mulki (2009) explains that local firms lack expertise, knowledge and skills to contribute towards supply chain management innovation. Innovation requires specialized knowledge and skills to develop a new idea or a concept. It is worth noting that most local firms rely so much on supply chain innovation from developed countries since they lack resources and facilities to innovate.

According to Watson and Zhang (2005) most local firms fail to allocate adequate funds for research and development whereas other firms fail to completely allocate funds for the purpose of innovation in supply chain management. This discourages most firms from supply chain innovation, this hinders' creativity and innovation and thus impact negatively on organizational performance since most firms adapt traditional methods of supply chain management that are costly and inefficient.

Watson (2010) argues that inadequate resources and facilities pose a major challenge towards successful implementation of innovative supply chain management practice. To succeed in the implementation of innovation in supply chain firms, have to invest in modern facilities and equipment that support these processes and systems. For instance in re-engineering which is one of the innovative supply chain management the firms have to lay proper structures for designing and processing of goods and services better than its competitors. This requires a huge investment in facilities and resources to effectively deliberate on this process. This is in line with a study conducted by Barua (2013) who indicated that the challenges facing implementation of supply chain management was inadequate funds to invest in modern technology, resources and facilities, innovation and incompetent personnel.

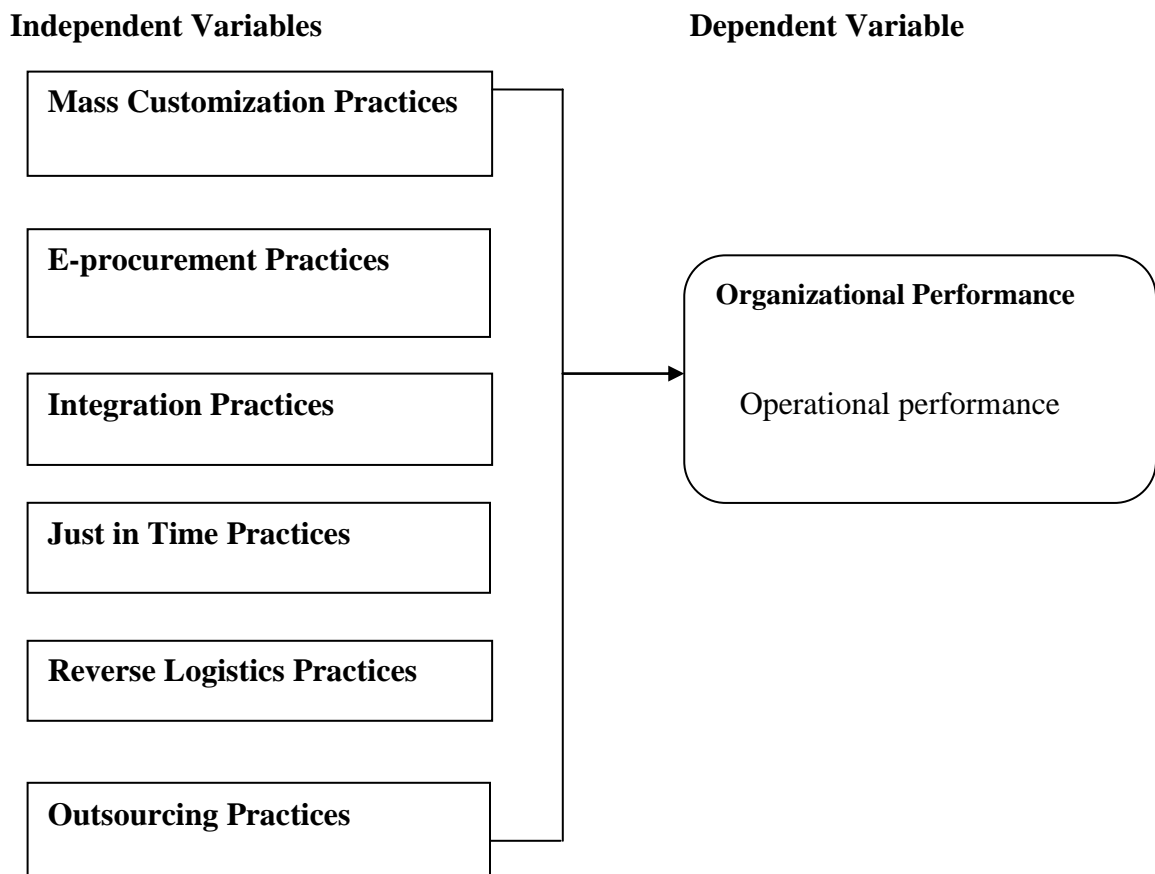
2.6 Summary of the Literature Review and Knowledge Gaps

Authors	Topic	Major Findings	Gaps
Huang and Liu (2014)	Re-examining supply chain integration and suppliers performance relationships of manufacturing firms	Use of modern technologies led to improved organizational performance	The study limited itself to supply chain integration
Roy and Wilkinson (2004)	Innovation generation in Supply chain relationships	The findings revealed that innovation was an important tool in supply chain relationships. Further it was revealed that supply chain innovation led to reduced costs	The study laid much focus on innovation generation and supply chain relationships
Rhee and Lee (2010)	Drivers of innovativeness and performance for innovative SMEs in South Korea	The findings revealed that innovation was a key driver towards realization SME's performance in South Korea.	The study limited itself on SMEs.
Miyare (2014)	Supply chain practices and firm profitability at KenolKobil Limited.	The correlation results found that there was a strong correlation between supply chain practices and firm profitability	The was too broad, it focused on supply chain practices The study limited itself to KenolKobil.
Livohi (2012)	Implementation of Performance measurement by Oil marketing companies (OMCs) in Kenya.	It was found that performance measurement was a tool for enhancing performance by OMCs in Kenya.	The study limited itself to performance measurement.
Barua (2013)	Challenges facing implementation of supply chain management by oil marketing companies	It was revealed that the main challenges were inadequate funds to invest in modern technology, resources and facilities, innovation and incompetent personnel.	The study was limited to challenges of implementing supply chain management.

2.7 Conceptual Framework

The conceptual framework adopted for this study shows that innovative supply chain management practices (independent variables) which are: mass customization, e-procurement, integration, just in time and reverse logistics influence organizational performance (the dependent variable).

Figure 2.1: Conceptual Framework



Source: Own compilation (2015)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter gives an outline of the research methodology that was used in conducting the study. The section provides the research design, the total population, data collection and data analysis methods that the researcher intends to use to achieve the objectives of this study.

3.2 Research Design

This study used a descriptive survey. According to Cooper and Schindler (2006) a descriptive survey describes the population with respect to important variables with more emphasizes on determining the extent to which two variables co-vary. This design is appropriate for this study as it will help the researcher to describe how innovative supply chain management practices correlate with organizational performance.

3.3 Population

The population of the study consisted of oil marketing companies in Kenya. According to (Pipecor, 2014), there are 36 Oil Marketing Companies (OMCs) in Kenya that are licensed to work and operate within the boundaries of Kenya as per Appendix II of this study. A census approach was used; this is because detailed information on OMCs is easy and economical to get since the study population is small.

3.4 Data Collection

For this study, primary data was collected by use of a questionnaire (See Appendix I). The questionnaire will be in the form of Likert scale where respondents were required to

indicate their views on a scale of 1 to 5. The questionnaire had four sections: Section A will seek data on the profile of the organization and the respondents, section B addressed the first objective of this study by collecting data on the innovative supply chain management practices used by oil marketing companies in Kenya. Section C addressed the second objective of the study which was to establish the relationship between innovative supply chain management practices and organizational performance of oil marketing companies in Kenya.

Section D addressed the third objective of the study which is to determine the challenges of implementing innovative supply chain management practices by oil Marketing Companies in Kenya. Primary data was collected from the heads of procurement departments; sections and senior procurement officers. This is because they work closely with research and development department on matters relating to innovation of supply chain management practices. The study targeted the senior procurement officers or their equivalents in each of the oil companies in Kenya. The questionnaires were administered by drop and pick later method at an agreed time with the researcher.

3.5 Data Analysis

The data collected was sorted, cleaned and coded before analysis. To achieve the first objective of the study, this is to determine innovative supply chain management practices used by oil marketing companies in Kenya. The study used descriptive statistics. To achieve the second objective of the study, this is to establish the relationship between innovative supply chain management practices and organizational performance of oil marketing companies in Kenya. The study used both regression and correlation analysis

to see if there exists any relationship between the variables. The regression model consisted of six variables: the independent variables which are innovative supply chain management practices while the dependent variable is organization performance of oil marketing companies in Kenya. Below is the regression model that the researcher used for data analysis.

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + e$$

Where:

Y is Organizational performance

a is the Y intercept when x is zero

b₁, b₂, b₃, b₄ and b₅ are regression weights attached to the variables constants

X₁...X_n are the coefficients

X₁= Mass customization practices

X₂= E-procurement practices

X₃= Integration practices

X₄= Just-in-time practices

X₅= Reverse Logistics practices

X₆= Outsourcing practices

e= Error term.

To achieve the third objective of the study which was to determine the challenges of implementing innovative supply chain management practices by oil marketing companies in Kenya. The study will use descriptive statistics.

Table 3.1: Summary of Data Collection and Data Analysis Methods

	Sections of the semi-structure Questionnaire	Nature of Data	Data Analysis
General Profile company and Respondent	Section A	Primary data	Descriptive Statistics; mean and standard deviation
Objectives			
Objective 1	Section B	Primary data	Descriptive Statistics; mean and standard deviation
Objective 2	Section C	Primary and Secondary data	Regression Analysis
Objective 3	Section D	Primary data	Descriptive Statistics; mean and standard deviation

Source: (Author, 2015)

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This chapter presents the analyzed data and the findings that were obtained from the primary data. In order to check for accuracy, consistency and completeness, all the questionnaires that were successfully filled and returned, were cross-checked to ensure that they were filled correctly. The objectives of the study was to determine innovative supply chain management practices used by Oil marketing companies in Kenya, to establish the relationship between innovative supply chain management practices and performance of Oil Marketing Companies in Kenya and to determine the challenges facing implementation of innovative supply chain management practices by Oil Marketing Companies in Kenya.

4.2 Response Rate

Thirty six questionnaires were distributed to the respondents of OMCS. Out of the 36 questionnaires distributed, 32 were returned to the researcher. This represents a response rate of 89% which was considered sufficient for making generalization of the whole population. Munyasya (2014) in his study obtained a response rate of 80% all the oil marketing companies in Kenya. This was considered a sufficient representation of the whole population.

4.3 General Information

This section consists of the general information about the respondents and the oil marketing companies operating in Kenya. The findings have been presented in the table below as follows:

4.3.1 Duration of Operation by the Oil Company

The study sought to determine the duration that the oil marketing companies were in operation to find out the period in which the organization had applied innovative supply chain management practices. The findings are presented in the table 4.1 below:

Table 4.1 Duration of Operation by the Oil Company

Duration	Frequency	%
Less than 10 years	11	35
More than 10 years	21	65
Others	0	0
Total	32	100.0

Source: Field Data (2015)

The above findings show that 65% of the respondents indicated that most oil companies had been in operation for more than 10 years while only 35% of the respondents indicated that oil companies have been in operation for less than 10 years. The findings therefore conclude that most oil companies had been in operation for more than 10 years.

4.3.2 Position in the Organization

The study sought to determine the position of the respondent in the organization to determine whether they were qualified to give accurate and reliable information with regard to the study objectives. The findings are presented in the table 4.2 below:

Table 4.2 Position in the Organization

Position	Frequency	%
Head of supply chain	25	78
Supply chain officer	7	22
Others	0	0
Total	32	100.0

Source: Field Data (2015)

The above results show that 78% of the respondents were senior procurement officers while the other 22% of the respondents were supply chain officers of oil marketing companies in Kenya. This means that the respondents were in a position to give accurate and reliable information with regard to innovative supply chain management practices and organizational performance of their respective companies. The findings conclude that majority of the respondents were the heads of supply chain were in a position to give reliable information with regard to innovative supply chain management practices and how it contributes to organizational performance.

4.3.3 Length of Service in the Current Position

The respondents were asked to comment the length of service in the current position in order to establish whether they had a relevant experience about innovative management practices and organizational performance in oil marketing companies in Kenya. The findings are presented in the table 4.3 below:

Table 4.3 Length of Service in the Current Position

Period	Frequency	%
Less than 5 years	8	25
5-10 years	11	34
10-15 years	7	22
Above 15 years	6	19
Total	32	100

Source: Field Data (2015)

From the above findings, it was observed that 25% of the respondents had served in their current position for a period of less than 5 years. 34% of the respondents had served for a period between 5-10 years while 22% of the respondents had served for a period between 10-15 years. Only 19% of the respondents had served for a period exceeding 15 years. This means that most of the respondents had gained adequate experience to give accurate and reliable information with regard to the study objectives.

4.4 Innovative Supply Chain Management Practices

The study determined the extent to which innovative supply chain management practices were used by oil marketing companies in Kenya. The innovative supply chain practices were as follows: mass customization, e-procurement, integration, just in time, reverse logistics and outsourcing. Below are the results of the findings:

4.4.1 Mass Customization Practices

The study sought to determine the extent to which mass customization practices are used by oil marketing companies in Kenya. The findings are presented in table 4.4 below:

Table 4.4 Mass Customization

	N	Mean	Std. Deviation
tailor customer products and services	32	4.3125	.59229
company schedules picking for customer goods and services	32	4.1250	.70711
company aggregates individual orders	32	4.0625	.75935
Valid N (listwise)	32		

Source: Field Data (2015)

From the above findings, it was revealed that most oil marketing companies tailored their products and services; they also did scheduling of customer goods and services, aggregating individual orders. The mean scores for mass customization practices were as follows: $m= 4.3125$, $m=4.1250$, $m=4.0625$ and $m=4.0000$. Their standard deviations were as follows: $s.d=.59229$, $s.d=.70711$, $s.d=.75935$ and $s.d=.80322$ respectively. The above results are a strong indication that mass customization practices are used to a very large extent by oil marketing companies in Kenya.

4.4.2 E-procurement Practices

The study determined the extent to which e-procurement practices were used by oil marketing companies in Kenya. The findings are presented in the table 4.5 below:

Table 4.5 E-procurement Practices

	N	Mean	Std. Deviation
(IFMIS module)	32	4.3750	.65991
transparency in all its tendering processes	32	4.1250	.90696
real time processing of data	32	3.8437	.80760
a wide range of suppliers	32	3.8125	.82060
Valid N (listwise)	32		

Source: Field Data (2015)

From the above findings in table 4.5, the respondents indicated that IFMIS module was used by most oil companies, they also pointed out that there is transparency in tendering processes by most oil companies in Kenya. Further, it was revealed that most oil companies adopted real time processing of data. Most oil companies were found to have a wide range of suppliers. The mean scores were as follows: $m=4.3750$, $m=4.1250$, $m=3.8437$ and $m=3.8125$. Their standard deviations were as follows:

s.d=.65991, s.d=.90696, s.d=80760 and s.d=82060 respectively. These results are a strong indication that most oil companies in Kenya use e-procurement management practices to a very large extent.

4.4.3 Integration Practices

The respondents were asked to comment on the extent to which integration practices were used in oil marketing companies in Kenya. The findings are presented in the table 4.6 below:

Table 4.6 Integration

	N	Mean	Std. Deviation
Enterprise Resource Planning system	32	4.4375	.50402
a database for all its suppliers	32	4.2500	.76200
improved connectivity with a wide range of suppliers	32	3.9688	.64680
collaborates with its suppliers in system upgrade	32	3.9375	.71561
Valid N (listwise)	32		

Source: Field Data (2015)

The above results found that most oil marketing companies use ERP systems, maintained a data base of suppliers, improved connectivity to a wide range of suppliers and enhanced collaboration with the suppliers in system upgrade. The mean scores were as follows: m=4.4375, m=4.2500, m=3.9688 and m=3.9375. Their standard deviations were as follows: s.d=.50402, s.d=.76200, s.d=.64680 and s.d=.7156. The above results show that most oil marketing companies in Kenya use integration management practices in their supply chain management.

4.4.4 Just in Time Practices

The respondents were asked to indicate the extent to which Just in Time (JIT) practices were used in oil companies in Kenya. Below are the results of the findings in the table 4.7 below:

Table 4.7 Just in Time Practices

	N	Mean	Std. Deviation
company uses a JIT system	32	4.7500	.43994
The company uses a JIT system to ensure on-time delivery of goods and services	32	4.3438	.48256
The company uses the JIT system to eliminate waste	32	4.0000	.71842
Valid N (listwise)	32		

Source: Field Data (2015)

The above findings revealed that oil marketing companies used just in time systems. The findings also observed that these systems were used in ensuring on-time delivery of goods and services and elimination of waste. The mean scores are as follows: $m=4.7500$, $m=4.3438$ and $m=4.0000$. The standard deviation scores are as follows: $s.d=.43994$, $s.d=.48256$ and $s.d=.71842$ respectively. The findings concludes that just in time practices were used to very large extent by oil marketing companies in Kenya.

4.4.5 Reverse Logistics Practices

The study sought to determine the extent to which reverse logistics management practices are used by oil marketing companies in Kenya. Below are the results of the findings in table 4.8 below:

Table 4.8 Reverse Logistics Practices

	N	Mean	Std. Deviation
The company abides with environmental regulations	32	4.16875	.67853
The company uses environmental friendly products	32	3.8438	.52332
The company hold more inventory than market demand	32	2.5312	.76134
The company receives some of its stock back from the customer for further processing	32	2.3125	.69270
Valid N (listwise)	32		

Source: Field Data (2015)

From the above results, most of the respondents indicate that the company abides with the environmental regulations; the findings also reveal that the oil companies use environmental friendly products. Further, it was pointed out that most oil companies hold more inventory than the market demand and some receive back stock from the customer for further processing. The results are as follows: $m=4.16875$, $m=3.8438$, $m=2.5312$ and $m=2.3125$. Their standard deviations are as follows: $s.d=.67853$, $s.d=.52332$, $s.d=.76134$ and $s.d=.69270$ respectively. These findings are a strong indicator that reverse logistics management practices were used a moderate extent by oil companies in Kenya.

4.4.6 Outsourcing Management Practices

The respondents were requested to indicate the extent to which implementation of outsourcing management practices is achieved by oil marketing companies in Kenya.

Below are the results of the findings in table 4.9 below:

Table 4.9 Outsourcing

	N	Mean	Std. Deviation
The company use outsourcing to allocate more time for research and development	32	4.7500	.43994
The company use outsourcing to benefit from modern technologies (ICTs)	32	4.7188	.45680
The company adopts outsourcing for professional services	32	4.3750	.49187
The company outsources supply chain management practices	32	4.2500	.43994
Valid N (listwise)	32		

Source: Field Data (2015)

From the above findings, most of the respondents indicated that oil companies used outsourcing to allocate more time for research and development; it was found that oil companies use outsourcing in order to benefit from modern technologies. The findings further revealed that most oil companies adopted outsourcing to benefit from professional services. It was also revealed that oil companies outsourced supply chain management practices. The mean scores are as follows; $m=4.7500$, $m=4.7188$, $m=4.3750$, $m=4.2500$. Their standard deviations are as follows: $s.d=.43994$, $sd=.45680$, $s.d=.49187$ and $s.d=.43994$ respectively. This is an indication that outsourcing management practices was implemented to a large extent by oil marketing companies in Kenya.

4.4.6 Summary of Rankings of the Innovative Management Practices

Table 4.10 Summary of Rankings of the Innovative Management Practices

Innovative supply chain management practices		Mean	Standard Deviation
1	Outsourcing	4.45123	.46123
2	Mass Customization	4.2201	.6313
3	Just in time	4.42131	.54321
4	Integration	4.12341	.64321
5	E-procurement	3.9231	.71324
6	Reverse Logistics	3.1245	6.3427

Source: Field Data (2015)

From the above table in 4.10, the results reveals that the most popular innovative supply chain management practice among oil companies in Kenya is outsourcing then followed by mass customization, just in time, integration, e-procurement. The least used practice is reverse logistics. These findings are consistent with the findings by Rhee and Lee (2010) who concluded that innovative practices used by SME's included mass customization and Just In Time.

4.5 Innovative Supply chain Management Practices and Organizational Performance

The second objective of this study was to establish the relationship between innovative supply chain management practices and performance of Oil Marketing Companies in Kenya. To achieve this objective, the study carried out a regression analysis between innovative supply chain management practices (independent variables) and organizational performance (dependent variable) of oil marketing companies in Kenya.

The results of the model coefficients are provided below:

4.5.1 Model Coefficients

The study tested the coefficients to determine the direction of the relationship (positive or negative) between the innovative supply chain management practices and organizational performance of oil marketing companies. The results are provided in the table 4.11 below:

Table 4.11 Model Coefficients

Model	Coefficients ^a				t	Sig.
	Unstandardized Coefficients		Standardized Coefficients	Beta		
	B	Std. Error	Beta			
(Constant)	.035	.214			-.214	.826
Mass Customization (X ₁)	-.029	.310	-.024		-.096	.927
E-procurement (X ₂)	.532	.253	-.390		-2.139	.057
Integration (X ₃)	2.051	.302	1.921		6.757	.000
Just in time(X ₄)	2.192	.252	1.234		4.345	.032
Reverse Logistics (X ₅)	1.694	.113	.934		3.442	.049
Outsourcing (X ₆)	-.317	.243	-.457		-1.824	.089

a. Dependent Variable: cost reduction

From the above findings in table 4.11, the regression model obtained is as follows;

$$\text{Cost Reduction} = 0.035 - .029X_1 + .532X_2 + 2.051X_3 + 2.192X_4 + 1.694X_5 - .317X_6$$

E-procurement, integration, just in time and reverse logistics depicted a positive relationship with organizational performance (cost reduction) of oil marketing companies in Kenya. Mass customization and outsourcing practices showed an inverse relationship with organizational performance (cost reduction).

The findings observed that integration, just in time and reverse logistics were statistically significant because their p-values were less than 5% as follows: p=0.000, p=0.032 and p=0.049 respectively. On the other hand, mass customization, e-procurement and outsourcing showed a statistically insignificant relationship with organizational

performance (cost reduction) since their p-values were more than 5% as follows: $p=0.927$, $p=0.057$ and $p=0.089$ respectively. These findings are consistent with the findings by Roy and Wilkinson (2004) who concluded that mass customization; integration and outsourcing were statistically significant since their probability values were less than 5%.

Table 4.12 Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.616 ^a	.379	.258	.2103

a. Predictors: (Constant), mass customization, e-procurement, integration, Just in time, reverse logistics, outsourcing

From the above results, R is multiple correlations which show that there is a moderately strong correlation between the variables as follows: $R=0.16$. R-squared (R^2) which is the coefficient of determination is 37.9%, it shows the extent to which the variance in the dependent variable (organizational performance) is explained by the independent variables. This is an indication that the model is a poor predictor which implies that there are a number of predictors not included in the prediction model.

4.5.2 Analysis of Variance

An analysis of variance was used to test whether the overall regression model is a good fit for the data. The findings are as shown below in table 4.13:

Table 4.13 Analysis of Variance

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.609	6	5.2682	127.5593	.000 ^b
	Residual	1.032	25	.0413		
	Total	32.641	31			

a. Dependent Variable: cost reduction

b. Predictors: (Constant), mass customization, e-procurement, integration, Just in time, reverse logistics, outsourcing

(i) F-test

The numerator whose degrees of freedom (df) =6 and denominator df =25 has a critical F-value of 2.060. The above findings show that the computed F-value is 127.5593. The regression model is significant since the computed F-value exceeds the critical value that is 127.5593. > 2.060

(ii) P-value

The regression model is statistically significant since the probability value 0.000<5% which means that the model is statistically significant. These findings are consistent with Huang and Liu (2014) who examined supply chain integration and organizational performance. The study found that supply chain integration led to improved organizational performance of manufacturing firms in Beijing. It was concluded that modern technology was part of the innovation plan of most firms that impacted positively on organizational performance.

4.6 Challenges of Implementing Innovative Supply Chain Management Practices

To achieve the third objective of the study, the study sought to determine the challenges faced by Oil marketing companies in Kenya in the implementation of innovative supply chain management practices. The findings are presented in the table 4.14 below:

Table 4.14 Challenges of Implementing Innovative Supply Chain Management Practices

	N	Mean	Std. Deviation
Lack of proper training	32	4.8065	.47745
Failure to invest in research and development	32	4.6452	.48637
Failure to invest in modern technologies	32	4.5806	.50161
Lack of commitment by top management	32	4.4516	.67521
Incompetent staff	32	2.8065	.70329
Poor infrastructure	32	2.6774	.59928
Unreliable suppliers	32	2.5806	.67202
Valid N (listwise)	32		

Source: Field Data (2015)

The above findings in table 4.14 found that the key challenges facing implementation of innovative supply chain management practices by oil companies were; lack of proper training, failure to invest in research and development, failure to invest in modern technologies, lack of commitment by the top management, incompetent staff, poor infrastructure, unreliable suppliers. The mean scores are as follows: $m=4.8065$, $m=4.6452$, $m=4.5806$, $m=4.4516$, $m=2.8065$, $m=2.6774$, $m=2.5806$. The standard deviations are $s.d=.47745$, $s.d. = 48637$, $s.d=.50161$, $sd.= .67521$, $s.d=.70329$, $s.d=.59928$ and $s.d=.67202$. These findings are consistent with Barua (2013) who indicated that the major challenges facing supply chain management in the oil companies were inadequate finances to invest in modern technology, lack of training, inadequate resources and facilities.

4.7 Chapter Summary

From the above findings it was observed that the respondents chosen for this study had a relevant working experience and thus were the most suitable to provide response on the questions that the researcher was seeking.

The findings revealed that innovative supply chain management practices namely mass customization, integration, just in time and outsourcing were implemented to a very large extent. Reverse logistics practices were used to a moderate extent among the oil marketing companies in Kenya.

Further the regression results concluded that innovative supply chain management practices led to improved organizational performance of oil marketing companies in Kenya. This was achieved through cost reduction. These findings are consistent with a study by Roy and Wilkinson (2004) who concluded that supply chain innovation led to reduced costs.

The findings also revealed that the key challenges facing implementation of innovative supply chain management practices by oil companies were; lack of proper training, failure to invest in research and development, failure to invest in modern technologies and lack of commitment by the top management. These findings are consistent with a study by Barua (2013) who studied the challenges facing implementation of supply chain management by oil marketing companies. The study concluded the major challenges were inadequate funds to invest in modern technology, resources and facilities and failure to invest in innovation.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The general objective of the study was to determine innovative management practices and organizational performance by oil marketing companies in Kenya. The study sought to find answer to the following: Innovative supply chain management practices used by Oil marketing companies in Kenya, the relationship between innovative supply chain management practices and organizational performance of Oil Marketing Companies in Kenya and the challenges facing implementation of innovative supply chain management practices by Oil Marketing Companies in Kenya. The researcher managed to collect data from 32 oil companies in Kenya. This representation is well above 10 percent that was recommended by Kothari (2005). These findings were considered sufficient to make generalization of all the oil marketing companies in Kenya.

5.2 Summary of Findings

The findings revealed that innovative supply chain management practices namely mass customization, integration, e-procurement, just in time and outsourcing were implemented to a very large extent. However, reverse logistics practices were implemented to a moderate extent in most oil companies in Kenya.

Further the regression results concluded that innovative supply chain management practices led to improved organizational performance of oil marketing companies. This was achieved through cost reduction. These findings are consistent with a study by Roy and Wilkinson (2004) who concluded that supply chain innovation led to reduced costs. Further, the regression results observed that integration, just in time and reverse logistics

were statistically significant because their p-values were less than 5% as follows: $p=0.000$, $p=0.032$ and $p=0.049$. On the other hand, mass customization, e-procurement and outsourcing showed a statistically insignificant relationship with organizational performance (cost reduction) since their p-values were more than 5% as follows: $p=0.927$, $p=0.057$ and $p=0.089$.

The findings also revealed that the key challenges facing implementation of innovative supply chain management practices by oil companies were; lack of proper training, failure to invest in research and development, failure to invest in modern technologies and lack of commitment by the top management. The mean scores are as follows: $m=4.8065$, $m=4.6452$, $m=4.5806$ and $m=4.4516$. The standard deviations are $s.d=.47745$, $s.d. = 48637$, $s.d=.50161$ and $sd.= .67521$. These findings are consistent with a study by Barua (2013) who studied the challenges facing implementation of supply chain management by oil marketing companies. The study concluded the major challenges were inadequate funds to invest in modern technology, resources and facilities and failure to invest in innovation.

5.3 Conclusion

The study concludes that mass customization, integration, e-procurement, just in time and outsourcing were implemented to a very large extent in most oil marketing companies in Kenya. Reverse logistics practices were used only to a moderate extent in oil marketing companies in Kenya. Further the regression results concludes that innovative supply chain management practices led to improved organizational performance of oil marketing companies. This was achieved through cost reduction.

The study concludes that the key challenges facing implementation of innovative supply chain management practices by oil marketing companies were; lack of proper training, failure to invest in research and development, failure to invest in modern technologies and lack of commitment by the top management.

5.4 Recommendations

From the above findings, the study has found that the oil industry faced challenges during implementation of innovative supply chain management practices for example lack of proper training, failure to invest in research and development, inadequate investment in modern technologies and lack of commitment by the top management. The study therefore recommends that oil companies should invest in modern technologies for example information communication technologies, increase capacity on training and development programmes on supply chain management and provide the employees with resources and facilities to enhance efficiency in supply chain management.

The findings have revealed that reverse logistics as one of the key innovation supply chain management practices discussed in this study which is used to a moderate extent. This study recommends that oil companies should implement reverse logistics practices to a large extent in order to reap from the benefits of reduced manufacturing costs and also improve on environmental conservation.

5.5 Limitations

One of the challenges faced by the researcher during data collection was time factor. Primary data collection consumes a lot of time. The researcher had to prepare in order to handle the different demands of the processes and at the same time, manage time effectively.

The findings of this study and application thereof are limited to oil industry in Kenya and therefore cannot be applicable directly or indirectly to another industry outside oil industry. It is therefore important for the reader understand that these findings can only be used for comparative purposes and not direct application to any other sector.

The other challenge faced by the researcher was that there was no control over the data collection; some of the respondents gave out incomplete questionnaires while others failed completely to fill the questionnaires on condition that the information provided would not be divulged to a third party.

Most of the employees thought that the process was tedious and non-paying. Therefore, it was a hard to convince the respondents to fill and complete the questionnaires on time, this significantly affected the response rate.

5.6 Suggestions for Further Research

The study recommends that it would be a good idea to investigate on the influence of various factors such as government regulations, environmental awareness or any other factors either as independent or moderating mediating variables that can influence the decision of oil companies when deciding to adopt innovative supply chain management practices.

The study proposes the need to investigate appropriate ways to increase formalization of research and development programs in the oil industry that will establish a platform to build and nurture innovation in supply chain management in order to enhance value addition.

A comparative study should be conducted in another country both in the sub-region, the developed and developing world to ascertain the innovative supply chain management practices used by oil companies globally and their contribution to organizational performance. Then, findings can be compared and conclusion drawn based on concrete facts.

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APPENDICES

APPENDIX I: RESEARCH QUESTIONNAIRE

Introduction

This questionnaire is designed for the sole purpose of collecting data on the effect of innovative supply chain management practices and organizational performance of oil marketing companies in Kenya. The data collected will be treated with a very high degree of privacy and it is meant for academic purposes only.

Section A: General Information

1. How long has your company been in operation in this oil industry?

(i). Less than 10 years []

(ii) More than 10 years []

2. What is your position in this company?

a) Senior procurement Officer []

c) Supply chain officer []

d) Other (specify).....

3. How long have you been in this position?

a) Less than 5 years []

b) Between 5 to 10 years []

c) Between 10 to 15 years []

d) Above 15 years []

SECTION B: INNOVATIVE SUPPLY CHAIN MANAGEMENT PRACTICES OF OIL MARKETING COMPANIES IN KENYA

4. Please indicate the extent to which you agree with the following statements on the innovative supply chain management practices in Kenya used by Oil Marketing Companies (OMCs). The scale below will be applicable: 1=very small extent, 2= small extent, 3= moderate extent, 4= Large extent, 5= to a very large extent.

No	Statement	1	2	3	4	5
Mass Customization						
1	The company adopts mass customization					
2.	The company tailor customer products and services					
3	The company aggregates individual orders					
4	The company schedules picking for customer goods and services					
E-Procurement						
1.	The company adopts e-procurement systems (IFMIS module)					
2.	The company ensures real time processing of data					
3.	The company ensure transparency in all its tendering processes					
4.	There is improved connectivity with a wide range of suppliers					
Integration						
1.	The company collaborates with its suppliers in system upgrade					
2.	The company uses Enterprise Resource Planning system					
3.	The company has an integrated information sharing system					
4.	The company has an improved connectivity with a wide range of suppliers					
5.	The company maintains a database for all its suppliers					
Just In Time						
1	The company uses a JIT system					
2	The company uses the JIT system to eliminate waste					
3	The company uses a JIT system to ensure on-time delivery of goods and services					
Reverse Logistics						
1	The company hold more inventory than market demand					
2.	The company uses environmental friendly products					

3.	The company receives some of its stock back from the customer for further processing					
4.	The company abides with environmental regulations					
	Outsourcing					
1.	The company outsources supply chain management practices					
2.	The company adopts outsourcing for professional services					
3.	The company use outsourcing to benefit from modern technologies (ICTs)					
4.	The company use outsourcing to allocate more time for research and development					

SECTION C: INNOVATIVE SUPPLY CHAIN MANAGEMENT PRACTICES AND ORGANISATIONAL PERFORMANCE

5. Please indicate the extent to which you agree with the following statements in regard to the relationship that exists between innovative supply chain management practices and organizational performance of oil marketing companies in Kenya. Use the following rating; 5 = to a very large extent, 4 = Large extent, 3 = Moderate extent, 2 = Small extent, 1 = Very small extent.

No	Statement	1	2	3	4	5
1	The company use of mass customization to minimizes cost reduction					
2.	Mass customization improve value for goods and services					
3.	Mass customization leads standardization					
4.	Mass customization by organization leads to improved efficiency					
5.	Use of e-procurement minimizes operational costs					
6.	Use of e-procurement leads to real time processing of data					
7.	Use of e-procurement improves customer satisfaction					
8.	Use e-procurement increases improved connectivity of suppliers					

9.	The company use integration to minimize communication costs					
10.	The company use integrations for collaboration with suppliers					
11.	The company uses JIT to reduce holding costs					
12.	The company use JIT to improve reliability of suppliers					
13.	The company use the JIT system to eliminate waste					
14.	The company uses JIT to improve on time delivery of goods and services					
15.	The Company use reverse logistics to minimizes processing costs					
16.	Use of reverse logistics leads to competitiveness					
17.	The Company use reverse logistics for improved agility					
18.	Outsourcing by the company minimizes costs					
19.	Outsourcing by the company improves flexibility					
20.	Outsourcing by the company improves the quality of services					

The relationship between innovative supply chain management practices and organizational performance of oil marketing companies in Kenya. Please provide the requested data as provided in the table below:

No	Statement	2013
1	Return on assets	
2	ROCE	
3	Market Share	

SECTION D: CHALLENGES OF IMPLEMENTING INNOVATIVE SUPPLY CHAIN MANAGEMENT PRACTICES BY OIL MARKETING COMPANIES IN KENYA.

6. Please indicate the challenges faced by your organization in implementation of innovative supply chain management practices in Oil Marketing Companies in Kenya. Please tick in the appropriate box using the following rating; 5 =strongly agree, 4 = Agree, 3 = neither agree not disagree, 2 = Disagree, 1 = Strongly disagree.

		5	4	3	2	1
1.	Lack of commitment by top management					
2.	Failure to invest in modern technologies					
3.	Incompetent staff					
4.	Unreliable suppliers					
5.	Failure to invest in research and development					
6.	Poor infrastructure					
7.	Lack of proper training					

APPENDIX II: REGISTERED OIL COMPANIES IN KENYA
REGISTERED OIL COMPANIES AND OVERALL MARKET
SHARE JANUARY TO MARCH 2014

Large Companies

- 1 Total Limited
- 2 Vivo Energy Ltd
- 3 Kenolkobil Limited

Medium Companies

- 4 Hashi Energy Ltd
- 5 Gulf Energy Limited
- 6 Libya Oil
- 7 Gapco Kenya Limited
- 8 Regnoil Oil Kenya Limited
- 9 Petro Oil Kenya Limited
- 10 National Oil Corporation of Kenya
- 11 Hass Petroleum Limited
- 12 Fossil Fuels Limited
- 13 Engen Limited
- 14 Oryx Energy's Ltd
- 15 Bakri International Energy Company
- 16 Royal Energy Kenya Limited
- 17 Mogas Kenya Limited
- 18 Tosha Petroleum Limited
- 19 Ainushamsi Energy Ltd
- 20 Galana Oil Limited

Small Companies

- 21 Olympic Petroleum Limited
- 22 Banoda Oil Ltd
- 23 Ranway Traders Limited
- 24 Essar Petroleum (East Africa) Ltd
- 25 City Oil Limited
- 26 Ramji Haribhai Devani Ltd
- 27 East Africa Gasoil Co. Limited
- 28 Dalbit Petroleum Limited
- 29 Trojan International Limited
- 30 Global Petroleum Products (K) Ltd
- 31 Axon Energy Ltd
- 32 Tiba Oil Company Limited
- 33 Futures Energy Company Limited
- 34 Tradiverse Kenya Limited
- 35 Fast Energy Limited
- 36 Kosmoil Petroleum (Ea) Limited

**APPENDIX III: SECONDARY DATA EXTRACTED FROM
FINANCIAL STATEMENTS OF OIL MARKETING COMPANIES IN
KENYA**

OMC	ROCE	COST REDUCTION	MKT SHARE
AMANA PETROLEUM	0.12	0.08	0
BAKRI INTL	0.02	0.06	0.03
BANODA OIL LTD	0.11	0.03	0.01
ENERGY SOLUTION (K) LTD	0.06	0.03	0
ENGEN KENYA LTD	0.06	0.06	0.02
FAST ENERGY LTD	0.03	0.06	0
FUTURES	0.12	0	0
GALANA OIL (K) LTD	0.12	0.01	0.02
HASHI ENERGY (K) LTD	0.06	0.08	0.03
HASS PETROLEUM	0.02	0.03	0.03
KENCOR PETROLEUM LTD	0.02	0.03	0
KENOL KOBIL PETROLEUM (K) LTD	0.05	0.06	0.18
KOSMOIL PETROLEUM (EA) LTD	0.02	0.03	0
NATIONAL OIL KENYA LTD	0.1	0.03	0.05
LIBYA OIL (K) LTD	0.06	0.03	0.08
OLYMPIC PETROLEUM LTD	0.12	0.03	0.01
PETRO OIL (K) LTD	0.02	0.03	0.01
RIVA PETROLEUM DEALERS LTD	0.1	0.08	0.01
STABEX INTERNATIONAL LTD	0.03	0.08	0
TOSHA PETROLEUM LTD	0.02	0.03	0.01
TOTAL KENYA LTD	0.03	0.03	0.2
VIVO ENERGY KENYA LTD	0.06	0.01	0.15

Source: (ERC, 2014)