

**SUPPLY CHAIN MANAGEMENT PRACTICES OF SMALL AND  
MEDIUM-SIZED OFFICE SUPPLIES FIRMS IN  
NAIROBI, KENYA**

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## **DECLARATION**

### **Student's declaration**

I, the undersigned declare that this research project is my original work and has not been presented in any other University or College for award of degree, diploma or certificate.

**Signed.....**

**Date.....**

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### **Supervisor's Declaration**

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## **DEDICATION**

This research is dedicated to my wife Anne Omututi, my son Trevor Baraka Okwach and my father Edward Okwach

## **ACKNOWLEDGEMENTS**

I wish sincerely to acknowledge the contribution of my supervisor, Mr. Onserio Nyamwange and the moderator, Mr. Ernest Akelo, for their valuable insights, timely guidance and directions which have culminated in the successful completion of this study.

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Finally, I wish to acknowledge all the respondents who provided reliable and valid data which facilitated the analysis and interpretation of the information.

## **ABSTRACT**

The aim of this research was three-fold. Firstly, the research sought to establish the supply chain management practices adopted by the office supplies firms in Nairobi, secondly to determine the benefits of adopting supply chain management practices by the office supplies SMEs in Nairobi and thirdly to establish the supply chain management challenges facing office supplies SMEs in Nairobi. Based on the review of the literature the main supply chain management practices, the benefits and the major challenges were identified. The research adopted a complete census design, where a self-administered questionnaire was designed and distributed to 125 Nairobi-based SMEs of which 87 complete and valid questionnaires were returned. Through a descriptive and inferential statistical analysis of the data collected, it was established that managing customer-supplier relationships was rated the highest ranked SCM practice. The major benefits of SCM were identified as increased response to customer needs while the major challenge was identified as the high cost of raw materials. The study concluded that SMEs implement SCM practices, benefit from implementing most of the practices, but also face challenges of embracing these new trends. The researcher has recommended that a further empirical study should be conducted to link each of the practices to the supply chain performance of the SMEs in Kenya.

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## **ABBREVIATIONS AND ACRONYMS**

EU	European Union
GDP	Gross Domestic Product
GoK	Government of Kenya
HRM	Human Resources Management
IDA	International Development Association
JIT	Just-In-Time
KMO	Kaiser-Meyer-Olkin
LEs	Large Enterprises
NCCI	National Chamber of Commerce and Industry
PE	Procuring Entities
PPDA	Public Procurement and Disposal Act
PPDR	Public Procurement and Disposal Regulations
R & D	Research and Development
SC	Supply Chain
SCM	Supply Chain Management
SMEs	Small and Medium Enterprises
SLAs	Service Level Agreements
TQM	Total Quality Management
VMI	Vendor Managed Inventory
WB	World Bank

# **CHAPTER ONE: INTRODUCTION**

## **1.1 Background of the Study**

Supply chain management (SCM) represents one of the most significant paradigm shifts of modern business management by recognizing that individual businesses no longer compete as solely autonomous entities, but rather as supply chains (Lambert and Cooper, 2000). SCM, along with a number of other emerging areas in operations management, is however, still in its embryonic stage (Handfield and Melnyk, 1998). The scientific development of a coherent supply chain management discipline requires that advances be made in the development of measurement instruments as well as in theoretical models to improve our understanding of supply chain phenomena (Croom, Romano and Giannakis, 2000).

According to Turkel (2010) the short term objective of SCM is to increase productivity and reduced inventory and cycle time. On the other hand, the long-term strategy is to improve process efficiency and effectiveness for all the supply chain members to eventually increase customer satisfaction, market share and profits. However, the overall objectives of SCM are to optimize total supply chain costs and investment in addition to appropriate levels of customer service in targeted market segments (Sweeney, 2003). Recent developments in Information Communication Technology (ICT), e-commerce, globalization of the commercial world and pressure to reduce the cost of doing business have forced firms to adopt supply chain management practices. SCM provides the end-customer with the right product, at the right time, priced at the right level and in the right quantity and quality.

### **1.1.1 Supply Chain Management Practices**

By definition supply chain (SC) is a network of retailers, distributors, transporters, storages and suppliers that participate in the sale delivery and production of a particular product (Christopher, 2000). It is a network of companies that comprises your suppliers, their suppliers, customers of your company and their customers, if they exist (Lambert, 2010).

Supply chain management has many definitions. However, for purposes of this study, supply chain management has been defined as the task of integrating organizational units along a supply chain and coordinating flows in order to fulfill customer needs with the aim of improving competitiveness of the supply chain as a whole (Adebayo, 2012). The purpose of supply chain management is to improve the long-term performance of the individual companies and of the supply chain as a whole. It is an integrating function with the primary responsibility for linking major business functions and businesses within and across companies into a cohesive and high performing business model (Jonsson, 2008).

Adebayo (2012) defined supply chain management practices as a set of activities undertaken in an organization to promote effective management of its supply chain.

SCM organizations are tasked with the responsibility of formulating and implementing strategies that if adopted will lead to achievement of a sustained competitive advantage. In the era of turbulent environment occasioned by globalization of competition and e-commerce, SMEs need to constantly scan the environment with a view to identifying and implementing supply chain practices that will enable an enterprise to achieve supply chain optimization using its limited resources (Abdifatah, 2013).

In supply chain management arena, some of the well known practices among small, medium and large enterprises are benchmarking, outsourcing, customer relationship management, inventory management, collaboration among customers and suppliers, information technology management, management of human resources and partnerships. These practices are corroborated by a recent study conducted by Valmohammadi (2013) who identified the most common SCM practices to be outsourcing, strategic planning, holding safety stock, strategic supplier relationships, supply chain performance, information sharing and coordination, supply chain benchmarking and sub contracting. In his findings, the researcher concluded that even though all the above SCM practices are important, holding of safety stock was singled out most important and adoption of IT as the least important of the practices.

Adoption of supply chain management practices among SMEs could yield a number of benefits such as reduced operating costs, improved customer service, reduced inventory and access to markets. In spite of the perceived SCM benefits, there a number of challenges a business enterprise may encounter in the course of implementing the practices. Some of the challenges could be high cost of information technology and other infrastructure, lack of credit, increasing transportation costs, changing customer needs and lack of training in supply chain management (Thakkar, *et al*, 2012).

Due to varying levels of physical and human resources, SCM practices may vary among large enterprises (LEs) and SMEs. Due to their relatively large resource bases, the large enterprises are more likely to embrace world class best practices such as outsourcing, benchmarking, supply chain design, strategic relationships and partnerships. Large companies have well recognized the benefits of SCM, but small and medium enterprises (SMEs) are lagging behind in appreciating how integrated supply chain drives remarkable changes in business processes and work with positive results in better quality services, cost reduction and efficiency. Past studies have revealed that a large percentage of small and midsize companies, still rely on manual processes to manage their global trade operations, particularly their exports. On that note, the SMEs are likely to adopt SCM practices such as customer-supplier partnerships, information sharing, information technology, training, internal systems and processes (Barua, 2010).

### **1.1.2 Small and Medium-Sized Office Supplies Firms in Kenya**

From a government standpoint there are a variety of definitions of an SME, depending on the country being considered. In Kenya, classification of enterprises is primarily based on the number of employees engaged by firms (Republic of Kenya 1986; 1992; 1994; 1997). Those firms that engage less than five employees are referred to as macro-enterprises, while those that employ five to 49 workers and 50 to 99 workers are respectively referred as small-scale and medium-sized enterprises. Firms with 100 or more workers are categorized as large-scale enterprises.

Public Procurement and Disposal (County Governments) Regulations, 2013 define SMEs as businesses with a maximum annual sales of KSh 500,000.00, implying a weaker financial and technical capacity to undertake large projects like construction of roads, markets and buildings.

According to ILO, an enterprise is considered to be an SME if it employs fewer than 250 persons and has an annual turnover not exceeding EUR 50 million and/or an annual balance sheet total not exceeding EUR 43 million and that an SME must be autonomous. It is considered autonomous provided that no more than 25 % of its capital or voting rights belong to one or several other enterprises which themselves do not meet the definition of an SME. There are exceptions to this 25% threshold for public investment corporations, venture capital companies, etc.

Wanjau *et al* (2013) defined small and medium manufacturing enterprises in Kenya's manufacturing sector as enterprises with fulltime employees not exceeding 100 or annual sales turnover not exceeding Ksh 150 million.

SMEs in Nairobi are predominantly retailers or resellers obtaining merchandize from one producer or wholesaler and selling to the end-users. The term retailer refers to an individual (or organization) who predominantly sells goods and services to final consumers or end-users (Kibera, 2009). Included in this category are supermarkets, hypermarkets, full service retailers and personal sellers. Depending on the complexity of the supply chain or chain of distribution, retailers provide the vital link between the producers and customers or between wholesalers and final consumers. Some of the upstream and downstream value adding services provided by retailers in the supply chain include: bulk breaking, sorting of items, provision of credit facilities to consumers, stocking of a variety of merchandise from a number of wholesalers and producers, transportation, storage of products, provision of market information to the supply chain members and advertising of the producers product to the final consumers. It has been established that as the number of middlemen in the chain of distribution increases, the

price of the product increases because each supply chain intermediary or middleman adds a margin to the cost of the product or service (Kibera, 2009).

Most retail businesses in Nairobi are either small or medium-sized enterprises (SMEs) with a low turnover and a limited number of employees, usually owner-managed. Some of the businesses are registered under the Business Names Registration Act either as sole proprietors or partnerships, while others are not registered at all. A small number of SMEs is registered as private companies under the Companies Act, Cap 486 of the Laws of Kenya. The size of the premises is usually small, with only sample products being displayed. The owner provides all the managerial input including financing, marketing, sourcing and physical distribution management. Some of the owners usually lack formal training in business organization, leadership and management and are therefore less profitable and have low prospects for growth and survival during difficult economic times. Due to their limited financial resources, SMEs find it difficult to invest in the state-of-the-art technology. The survival and growth of SMEs can be difficult in current competitive business environment and global marketplace; customers are more demanding to have better and cheaper products, higher service levels, more product varieties and faster delivery (Chow *et al.*, 2008; Ketchen *et al.*, 2008). In addition, the changes of business models such as lower production cost, delivery of ever-increasing customer value, flexibility with superior service and the pervasive impact of information technology (Chandra and Kumar, 2000) are increasingly creating mammoth challenges for SMEs to survive.

For purposes of this research, office supplies has been used to refer to office equipment, general office and computer stationery and other consumable items that are used in an average office to serve both internal and external customers. The term has also been used to refer to Maintenance Repair and Operating (MRO) supplies (Lysons and Farrington, 2006).

For purposes of this study, an office supplies firm is an enterprise that employs a maximum of twenty full time employees.

## 1.2 Research Problem

Despite the increasing attention being paid by all modern enterprises to supply chain management practices globally, small and medium-sized office supplies firms still lag behind in embracing the SCM practices. A study conducted by Thakkar *et al* (2012) concluded that supply chain management issues are more comprehensively explored in the context of large enterprises but less attention is paid to SMEs.

Office Supplies firms have been slow in recognizing the benefits that come with customer relationship management. Due to the current competitive business environment and global market place, customers are more demanding to have better and cheaper products, higher service levels, more product varieties and faster delivery than ever before (Chow *et al.*, 2008; Ketchen, *et al.*, 2008).

Wanjau (2013) conducted a study on the role of quality in growth of SMEs and economic development of Kenya. Even though conducted in Kenya, this study was inappropriate in terms of addressing the SCM practices, benefits and challenges among SMEs in Kenya. Quality has not been identified by any previous studies as supply chain management practice.

Venkateshwarlu and Akula (2013) identified closer cooperation between suppliers and customers to be a key SCM best practice. It has been established that SMEs are disadvantaged when it comes to accessing business opportunities from large scale enterprises because of the perceived lack of cooperation with the large enterprises.

Turkel (2010) concluded that SMEs do not implement SCM deeply as large firms; they do not emphasize strategic focus areas such as product development and quality to engage in SCM. The findings of this study were focused on the role of SMEs in supply chain management and so depict a high degree of relevance to the study in question. It however falls short of identifying the SCM practices of SMEs.



Auramo, *et al* (2005) conducted an investigation on the role of technology in SMEs supply chains and concluded that technology should be used to improve SME performance in SCM. However this study focused on the role of IT only and not SCM practices. Further this study was conducted in a developed economy hence the need to test firms in a developing economy such as Kenya.

Kimani (2013) conducted a study on SCM challenges in the oil industry in Kenya with specific emphasis on National Oil Corporation of Kenya (NOCK). The study however laid emphasis on the challenges alone without any reference to the SCM practices as adopted by the firm, hence the findings of this study did not address the SME supply chain management practices.

Andebe (2013) conducted a study of SCM practices in the textile industry in Kenya. The study however did not enumerate the practices in that industry. The findings were also irrelevant to office supply firms since SMEs are mostly resellers who are not directly engaged in manufacturing which could be a dominant feature in the textile industry.

Paik (2011) conducted a study of the role of SME size in supply management and concluded that medium enterprises (MEs) sampled had procurement departments while small enterprises (SEs) still lag behind in this aspect. This study was conducted in a developed world and also concentrated on purchasing only as opposed to the broader SCM practices hence was found to be unsuitable for establishing the SCM practices as envisaged by this particular study.

In view of the foregoing discussions, the research questions therefore were as follows: What are the supply chain management practices that are currently adopted by the office supplies SMEs? What are the benefits of adopting supply chain management practices by office supplies SMEs? And what are the challenges facing the SME in adopting supply chain management practices?

### **1.3 Research Objectives**

The research objectives of this study were:

- (i) To establish the Supply chain management practices adopted by the office supplies firms in Nairobi;
- (ii) To determine the benefits of adopting supply chain management practices by the office supplies SMEs in Nairobi; and
- (iii) To establish the supply chain management challenges facing office supplies SMEs in Nairobi.

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

Office supplies SMEs in Kenya have a huge potential of growth to become large enterprises of tomorrow. Office supplies remain one of the operating items that are required by most organizations, both macro- and micro-, including schools and government institutions. The challenges of these businesses are largely homogeneous despite the numerous SME subsectors. The results of this study will be useful to the respondents and similar businesses in terms of adopting the current supply chain management practices and take advantage of recent developments in with a view to enhancing their profitability, viability and competitiveness in the ever expanding office stationery and office equipment market. The findings of this study will also be of benefit to the policy makers in terms of enacting or amending the pieces of legislation which seek to promote the growth and survival of the SMEs in the country. The findings of this research will also be useful to supply chain practitioners of in terms of identifying the areas that require capacity building for office supplies retailers and similar organizations.

## CHAPTER TWO: LITERATURE REVIEW

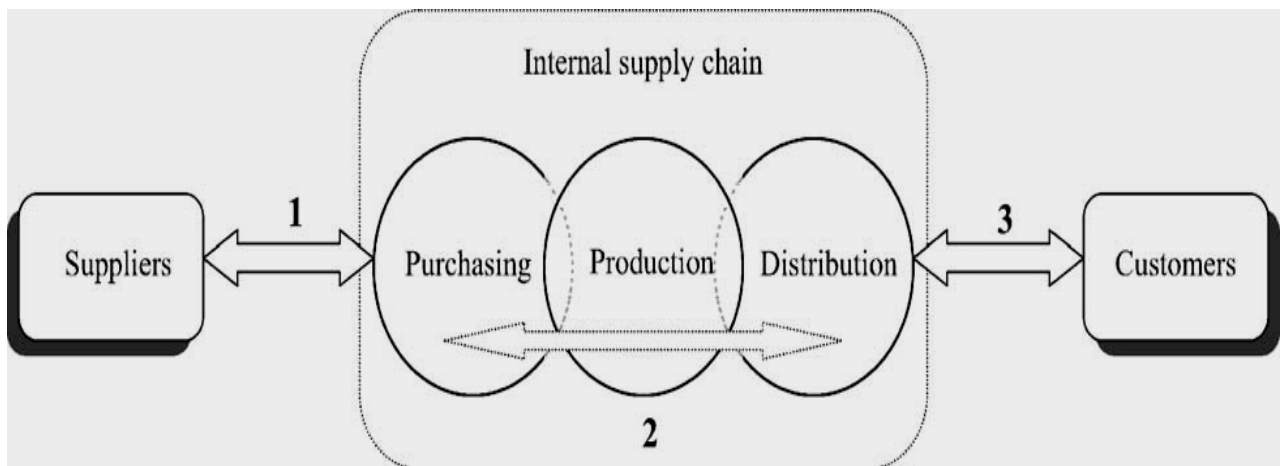
### 2.1 Introduction

This chapter presents a discussion on various theories and past studies which have been conducted in the area of SME Supply Chain Management in Kenya and internationally. The chapter concludes by highlighting the knowledge gap that still exist and which this study seeks to fill.

### 2.2 Supply Chain Management Practices

Supply Chain networks are formed out of complex interconnections amongst manufacturing companies and service providers such as raw material suppliers, original equipment manufacturers (OEMs), logistics operators, distributors, retailers and customers (Tehran, 2009). Supply chain management is about developing a process to respond to different requirements of each customer. Figure 1 shows a typical supply chain network, indicating the major supply chain members and actors.

**Fig 2.1: An illustration of a company's supply chain**



Source: Chan and Paulraj *“Towards a theory of Supply chain management: the constructs and measurements”* p120

SCM practices may vary from one organization to another, small, medium or large. Previous studies have identified the most common supply chain practices which are discussed in the paragraphs that follow.

Intense competition has driven companies to adopt world class and top-of-the range business processes. Benchmarking has many definitions in the SCM literature. However for purposes of this study, the term has been defined as an ongoing process of measuring products, services, practices and processes against the best that can be identified (Christopher, 2000). Lysons and Farrington (2006) identified four types of benchmarking to be internal, functional, competitive and strategic. The author also highlighted potential benefits as a gap analysis tool and strategy for minimizing resistance to change.

Outsourcing is considered an important strategy for companies as cost pressures increase and customers continue to demand more for less. Lysons and Gillingham (2003) defined outsourcing as the strategic use of resources to perform activities traditionally handled by internal staff and their resources. If properly implemented outsourcing can lead to increased profitability and lower cost of supplying products (O’Riordan and Sweeney, 2007). The authors identified main benefits of outsourcing to be Lower prices, greater flexibility, closer proximity to markets, increased service levels and better customer satisfaction. Lysons and Gillingham (2003) highlighted some of the benefits of outsourcing to as: frees management time, reduces staff costs, increases functional flexibility, reduces risk and improves consistency of service.

Supply chain collaboration involves a number of elements. It requires sharing of information among supply chain partners, congruence of goals across the supply chain, synchronization of decision making, alignment of outcomes and sharing of resources. Collaboration is an important factor in supply chain optimization. Optimization is likely to be achieved by collaboration between cross-functional teams within in the organization and customers and suppliers external to it (Lysons and Farrington, 2006). Myers (2010) established that the longer the collocation, the lower the cost and that long-term

collaboration leads to innovation. Positive collaboration-related outcomes include enhancements to efficiency, effectiveness and market position for the respondent's firms. (Soonhong *et al*, 2005). Abdifatah (2012) concluded that collaboration is critical to achieving performance improvement and it requires to work.

The most important actors in a supply chain network are customers and suppliers. Supply Chain integration aims at coordinating processes along the supply chain seamlessly as a determinant in maintaining a competitive advantage over a firm's competitors. Supplier integration positively moderates the relationship between customer integration and efficiency. When supplier integration is low, customer integration can even produce a reduction in efficiency (Danese and Romano, 2011). The authors concluded that efficiency performance optimization requires leveraging simultaneously on customer and supplier integration to foster their interaction rather than investing and acting on customer integration only. Naslund and Williamson (2008) identified three dimensions of integrations to be information, cognitive and managerial. The authors observed that supply chain integration is difficult to operationalize from an industry perspective and identified three driving forces and barriers as information, cognitive and managerial.

Information sharing and flow in SCM is a critical ingredient of implementing SCM practices in SMEs and therefore Information Technology (IT) is useful in controlling today's complex supply chains. Auramo, *et al* (2005) categorized the use of IT for SCM purposes into order transaction processing, supply chain planning and collaboration and order tracking and delivery coordination. The findings of the researcher suggested that use of ICT in SCM reduces manual work and costs, improvement of information quality, speeding up information transfer and volume of transactions. Trehan, *et al* (2009) identified ten prominent roles in IT usage in SCM as market share, product quality, inventory management, product pricing, demand forecasting, and control of demand variability, wastage of short life cycle product, home delivery and overall customer satisfaction.

Every organization operates within its own internal environment which encompasses its internal customers. Supply chain management involves people, processes and technology (Deveshwar and Rathee, 2010). According to Kagiri *et al* (2013) and Abdifatah (2013), efficient and effective internal operations and processes is a key SCM practice.

Continuous improvement is a concept that requires business organizations to continually identify functions that need to be attended to. Corporate success will increasingly be dictated by how well a company controls its supply base, create performance improvement and identify and mitigate supply bottlenecks and liabilities (Baird, 2011).

### **2.3 Benefits of Supply Chain Management Practices**

Implementation of supply chain management practices could deliver a number of potential benefits to SMEs (Fischer *et al*, 2010). As such many companies are re-engineering and rationalizing their supply chain network to obtain the benefits that result from adopting and implementing SCM practices (Van der Vorst, 2004). Some of the benefits of supply chain management are discussed in the following paragraphs.

SCM practices can lead to increased profitability despite competitive pressures. Previous research in supply chain management has recognized some of the benefits of effective supply chain management to be higher return in Investments (ROI), and assets (ROA), lower cost that enable firms to be price competitive, improved processes, reduced redundancies, lower inventory, better quality, reduced lead time and demand uncertainties, improved customer service levels and market responsiveness and better access to target market segments through information, knowledge /skill sharing (Naslund and Williamson, 2008).

Every organization desires to reduce its operating costs. Venkateshwarlu and Akula (2013) conducted a study on benefits of supply chain management practices in select organizations focusing on iron & steel, cement and agricultural sectors in India and identified supply chain management benefits to include better quality information, better

quantity information, flexibility, reduced lead time, cost savings, increased sales and increased coordination with customers and suppliers.

Supply chain customers have become more demanding hence the need to respond rapidly to customer orders. Valmohammadi (2013) conducted a study of SCM practices in Iranian manufacturing organizations and established that the most important benefit of implementing SCM practices was the desire to increase customer satisfaction and improved organizational performance.

The profitability of supply chains could be improved drastically via better delivery performance and increased information availability at the operational level and a reduction in time-to-market at the tactical and strategic level. The potential for improvement when applying SCM benefits is based on the reduction of inventory-carrying and transportation costs, the reduction of indirect and direct labor costs and the increase of sales and sales margins (Van Der Vorst, 2004).

SCM practices seek to increase service levels in supply chains by ensuring availability of inventory at the time and point of need. A comparative research conducted in India and Middle East concluded that automobile companies have been successfully using SCM practices to help them in demand forecasting, receiving orders from dealers thus giving close to accurate promise date, sourcing and manufacturing the right parts at the right time for a range of vehicles, position of the necessary parts appropriately, provide best fill rate, pick, pack and efficient movement from the various parts average distribution centres (Kaushal and Sangha, 2013).

## **2.4 Supply Chain Management Challenges**

Supply chain organizations operate in a dynamic environment which requires constant monitoring and proactive actions to mitigate the likely impact. Fisher *et al* (2010) observed that the recent global recession has had at least one positive effect. It has forced companies to take an intense look at their supply chains, question some of their assumptions and root out major inefficiencies. For example, ad hoc decisions to source

low-price products from countries with the lowest labor cost may no longer make sense when the long-term increase in transportation rates, risks of disruption, and weeks of inventory in the pipeline are factored into total landed cost calculations. Some of the SCM challenges are discussed in the following paragraphs.

SME supply chains are characterized by variations hence the need to forecast demand based on past consumption. Demand patterns will most often exhibit cyclical patterns thus causing a bullwhip effect in supply chains. According to Kearney (2001), the bullwhip effect describes a phenomenon observed in multi-tier distribution chains with uncertain demand patterns and limited information about status in the different supply chain elements. It describes the effect that inventory amplitudes increase as you move down the supply chain.

Order processing and dispatch is a complex process which if not handled properly may create a backlog in the supply chain. SMEs lack the essential skills to effectively deal with delivery delays. Ability of SMEs to successfully implement computerized inventory management techniques such MRP, VMI and JIT is still at an embryonic stage. There is need to for SMEs to embrace these new techniques and take advantage of increasing customer expectations in a competitive environment (Van der Vorst, 2004).

Supply chain management requires a good transport and physical distribution system. However, economic trends have shown a steady increase of the cost of transport.

Supply chains require financial investments in procuring raw materials and meet other daily expenses. Abdifatah (2013) identified lack of financial resources as one of the major SCM challenges facing humanitarian organizations in Kenya.

Successful implementation of supply chain management practice depends on the ability of the organization to form deeper relationships with supply chain partners. Kimani (2013) identified partnership/collaboration to be a major challenge in the petroleum industry in Kenya. The researcher's focus was rather narrow having focused mainly on the SCM challenges without making any reference to the SCM practices and benefits.



Most of the customer-supplier relationships are still transaction based as opposed to strategic alliances. Some of the emerging practices in supply chain Management include variations in demand which occurs in supply chains in companies delivering to end customer markets, time delays, delivery times and delivery precision, uncertain demand and outsourcing and transaction costs (Jonsson, 2008).

Supply chains are faced by a number of risks, both internally and externally. Fisher et al (2010) identified cost control planning and risk management as some one of the SCM risks associated with supply chain management. Amemba (2013) identified supply chain risks as technical, structural, cultural, market, financial, legal and political.

## **2.5 Empirical Studies**

This section highlights some of the previous studies and surveys conducted on SME supply chains both locally and internationally.

### **2.5.1 Local Empirical Studies**

Andebe (2013) conducted a survey of green SCM practices in the textile industry in Kenya and established that the textile industry has adopted green supply chain management practices to a minimal extent. The study in question however did not comment on these particular practices in that industry. In addition, the textile industry in Kenya is rocked with intense competition from the low cost imports of new and second-hand clothes; hence the practices may not be applicable to office supplies firms in Nairobi.

Kimani (2013) conducted a study on the SCM challenges facing the oil industry in Kenya and established that information technology, supply chain design, partnership/collaboration and people have a positive impact on the implementation of an effective supply chain management. This was a case study with a narrow focus on the SCM challenges facing the petroleum industry. The findings were therefore not conclusive since it had adopted a narrow focus on SCM challenges as opposed to the broader supply chain management issues.

Awino and Wainaina (2009) conducted a study on SCM best practices of large manufacturing firms in Kenya and concluded that operating policies, linkages with supply chain firms, improved performance, information technology systems, strategic alliances, performance measures, goal orientation, customer services guidelines and procedures, supplier evaluation are the most important supply chain management practices of large private manufacturing firms in Kenya. The paper also established that SCM best practices used in the large firms in Kenya compare well with SCM best practices globally. The practices used in this study had been adopted so as to compare the practices with office supplies firms.

Abdifatah (2013) conducted a study of SCM practices in humanitarian organization in Kenya and identified maintenance of good customer relations, efficient and effective internal operations, continuous improvement, flexible production processes, use of information technology to speed up humanitarian work, inter-organizational integration and simplicity in internal operations to be the prevalent practices among the humanitarian organizations. Although this study was conducted in Kenya, the SCM practices in humanitarian organizations may not affect the office supplies firms since these are largely non-profit making organizations.

### **2.5.2 International Empirical Studies**

Storey, *et al* (2011) conducted a study on Supply chain management: theory, practice and future challenges in Europe and identified supply chain management enablers and barriers as transparency of information and knowledge, supply chain behavior and performance measurement and SCM drivers as globalization, outsourcing and fragmentation and to some extent market polarization. This study although relevant was conducted in Europe and covered a broader scope than the focus of this study.

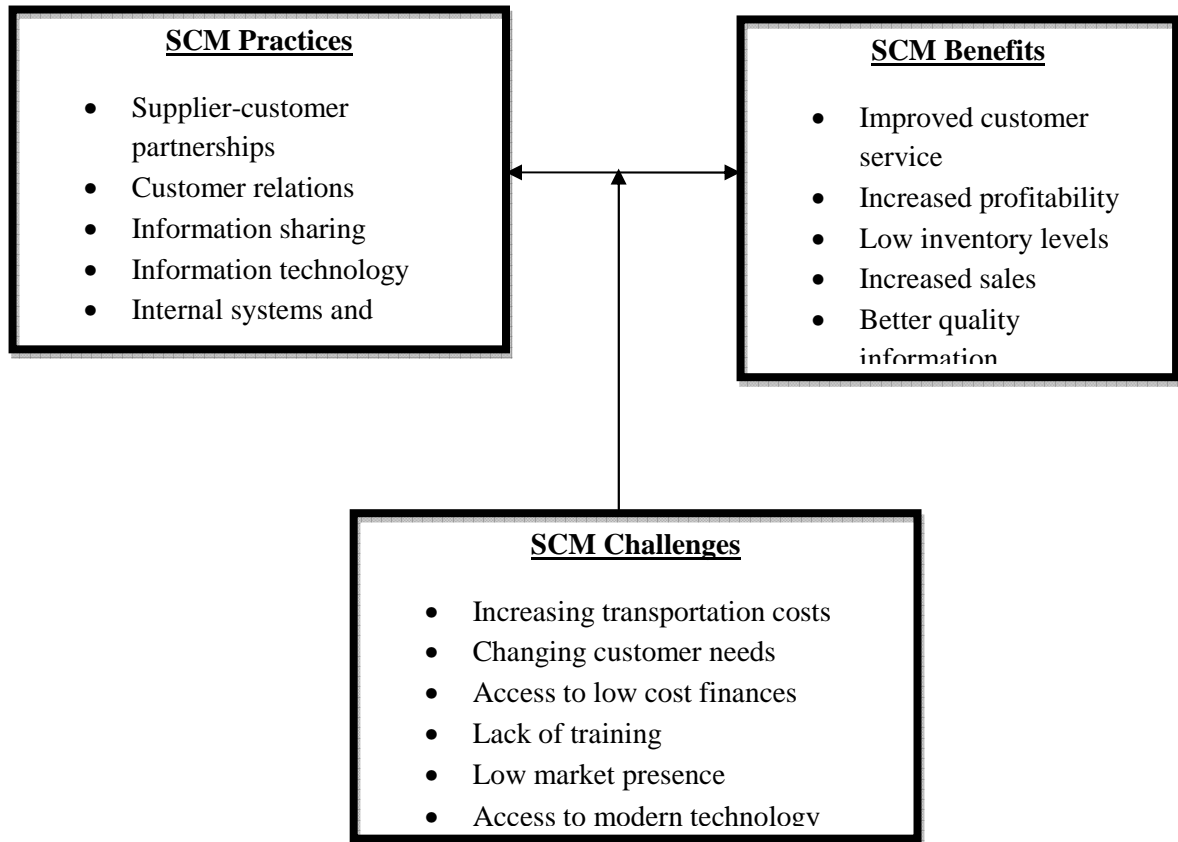
Quayle (2003) conducted a study of supply chain management practice in UK Industrial SMEs and found that there was lack of effective adaptation of traditional adversarial relationships to modern collaborative e-supply chain and the issues businesses need to address to improve performance of their competitiveness by grasping the benefits of

effective supply chain management. This study had a main focus on the supply chain relationships and benefits of SCM. In addition the study focused on industrial SMEs in UK hence the findings may not apply to office supplies SMEs in Kenya which are mostly retail firms.

## 2.6 Conceptual Framework

Fig 2.2 shows a conceptual framework depicting the relationship between the three research objectives which are already identified. Adopting SCM practices leads to SCM benefits. The practices and benefits can be affected by the SCM challenges.

**Fig 2.2 Conceptual Framework**



**Source: Researcher**

## **2.7 Conclusion**

An analysis and review of past studies reveals that little research has been done with a specific focus on supply chain management challenges facing SMEs in the Kenyan context. Past studies on supply chain management practices both in Kenya and internationally have been very general. Most of these studies have been conducted in manufacturing industries with very few of them focusing on service industries. It appears that supply chain management practices, benefits and challenges vary from one industry to another. There is no universally accepted set of SCM practices that apply to all organizations, large or small. There still exists conflict in the literature in terms of the common SCM practices adopted by SMEs. In view of the absence of any past surveys focusing on SCM practice of office supplies SMEs, this study therefore seeks to identify the current SCM practices adopted by the SMEs and align them to world class supply chain best practices.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter discusses the research design and methodology of the study. It highlights a full description of the research design, the research variables and provides a broad overview of the description and selection of the population. The research instruments, data collection techniques and data analysis tools have also been described.

### **3.2 Research Design**

The study adopted a descriptive design, which ensured ease in understanding the insights and ideas about the problem. According to Zikmund *et al* (2010), surveys attempt to describe what is happening or to learn the reasons for a particular business activity. This study aims to investigate three objectives formulated from the review of the literature. Descriptive survey design is flexible enough to provide opportunity for considering different aspects of a problem under study (Kothari, 2004). This design was further found to be appropriate for this study since Borg, Gall & Gall (2003) noted that descriptive survey research is intended to produce statistical information about the aspects of the research issue (in this case supply chain management practices that may be of interest to policy makers and SMEs).

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

The population for this study included all the office supplies SMEs listed Nairobi Business Directory online website. As at 30<sup>th</sup> June 2014, there were 125 firms listed in the online site. The directory provided the name of the business, telephone and email contacts and the physical address of each firm. Since the population in question was fairly small, a complete census was used in this survey.

### **3.4 Data Collection**

Primary data was collected using a self-administered questionnaire. The questionnaire had been structured according to the objectives of the study as the supply chain

management practices, benefits of adopting supply chain management practices and the challenges facing the office supplies SMEs in adopting SCM practices. The questionnaire was in four parts viz, general information, supply chain management practices, supply chain management benefits and supply chain management challenges. The data collection instrument was issued to business owner-managers, Operations Managers, Supply Chain Managers and Buyers who had been presumed to have a better understanding of the practices, benefits and challenges afflicting their firms from a supply chain management point of view.

### **3.5 Data Analysis**

The data obtained from the research instrument was analyzed using Statistical Package of Social Sciences (SPSS) Version 16.0 software, both descriptively and inferentially. In this study, only the three research objectives were subjected to analysis. In the first stage, a descriptive analysis of each objective was done and tables of frequency distribution were used to compute the weighted arithmetic mean (WAM) and standard deviation (SD) for each factor. In the second stage, Factor Analysis was used to identify factor loadings and come up with a few factors that were critical to the study. This was found to be necessary since the factors needed to be reduced a few important factors that would be pertinent to the survey. In order to check internal consistency Cronbach's alpha coefficient should be above 0.70. In this sample the Cronbach's alpha coefficient was 0.860. This implies that the scales were reliable.

## **CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS**

### **4.1 Introduction**

This chapter presents the data collected from respondents and how it was analyzed. Out of a population of 125 firms that had been identified for the study, 87 responses were received and analyzed, representing a 70% response rate. The data collected was analyzed both descriptively and inferentially in figures and tables as shown in the paragraphs that follow. To measure the consistency of the scores obtained and how consistent they were for each individual from one administration of an instrument to another and from one set of items to another, the researcher used Cronbach's alpha (a measure of the internal consistency of the data) which should be a coefficient with a value above 0.70. In this study, the Cronbach's alpha coefficient was 0.86. This implies that the scales were reliable.

Together with correlation analysis, factor analysis was done to establish the relationships among the study variables. In particular, factor analysis procedure was used to measure and establish SCM best practices in the study as applied by various SMEs. This method was necessary to reduce a set of several difficult in order to interpret correlated variables to few conceptually meaningful relatively independent factors, which could be easily interpreted. To make interpretation easier, a linear transformation on the factor solution, factor extraction was conducted, which came up with fewer components (factors) that are uncorrelated with one another.

### **4.2 Supply chain Management Practices**

#### **4.2.1 Rankings**

The first objective of this study was to establish the supply chain management practices adopted by the office supplies firms in Nairobi. The data collection tool had asked the respondents to indicate the SCM practices that they were adopted and the extent to which they considered each of the SCM practices to be important in their businesses. The respondents had been provided with seventeen practices form which to choose using a

scale of 1-5 where 1= to no extent at all, 2=to a little extent, 3=to a moderate extent, 4= to a great extent and 5= to a very great extent. Table 4.1 below indicates the rankings in order of the extent of implementation of each practice by the SMEs under study. It was established that managing customer-supplier relationships (4.28), information sharing between customers and suppliers (4.27) and continuous improvement (4.26) were singled by the study to be the SCM practices that were important to the SMEs to a “great extent.” Training in supply chain management had the lowest weighted score of 3.27, an indication that it was moderately important. Training in supply chain management had the lowest weighted score of 3.27, an indication that it was moderately important.



**Table 4.2.1 Ranking of SME Supply Chain Management (SCM) Practices**

<b>Rank</b>	<b>SCM Practices</b>	<b>Weighted arithmetic mean</b>	<b>Standard deviation</b>
1	Managing Customer-Supplier relationships	4.28	0.0702
2	Information Sharing between customers and suppliers	4.27	0.0667
3	Continuous Improvement	4.26	0.0660
4	Vendor Managed Inventory	3.86	0.0057
5	Just-In Time (JIT)	3.81	0.0029
6	Information Technology	3.70	0.0000
7	Supply Chain Design	3.68	0.0000
8	Inventory Management	3.62	0.0011
9	Supply Chain Collaboration	3.61	0.0013
10	Lean Production	3.59	0.0021
11	Formation of Strategic Alliances	3.55	0.0038
12	Supply Chain Benchmarking	3.51	0.0064
13	Agile Production	3.48	0.0092
14	Supply Chain Integration	3.47	0.0093
15	Supplier Partnerships	3.35	0.0238
15	Internal Systems and Processes	3.35	0.0238
17	Training in Supply Chain Management issues	3.27	0.0341

*Source: Research data, 2014*

#### 4.2.2 Factor Analysis of Supply Chain Management Practices

This analysis involved an inspection of Correlation Matrix for evidence of coefficients greater than 0.3. KMO Index & Bartlett's test of sphericity was used to test the strengths in correlation matrix.

The data was further subjected to Kaiser-Meyer-Olkin Measure of Sampling Adequacy (K.M.O) whose value is required to be above .6 and Bartlett's Test of Sphericity whose value should be significant at below 0.05. These results therefore that factor analysis is appropriate since the KMO value was 0.658 and Bartlett's significance value was 0.000.

**Table 4.2.2 SCM Practices KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.658
Bartlett's Test of Sphericity	Approx. Chi-Square	391.938
	Df	136
	Sig.	.000

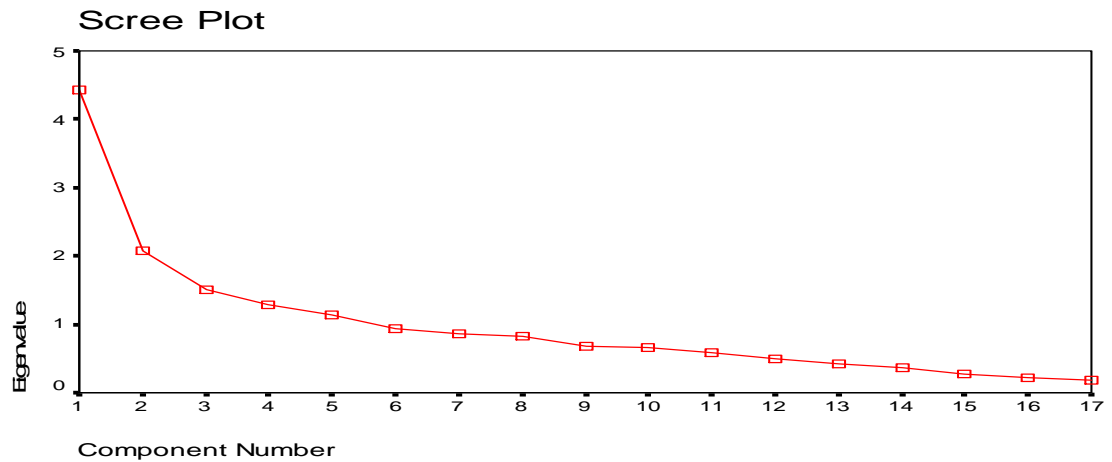
The second step involved Factor Extraction under Principal Component Analysis. This process involved the use of **Kaiser's criterion (Eigen value rule)**. Under this criterion, only those factors with eigen value of 1.0 or more were retained for further analysis. From the results, the first five components explained about 62% of the variance, while the remaining 12 components explained 38% of the variance.

**Table 4.2.3 SCM Practices Total Variance Explained**

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.437	26.101	26.101	4.437	26.101	26.101
2	2.086	12.268	38.369	2.086	12.268	38.369
3	1.516	8.919	47.288	1.516	8.919	47.288
4	1.290	7.590	54.878	1.290	7.590	54.878
5	1.144	6.727	61.605	1.144	6.727	61.605
6	.939	5.523	67.128			
7	.871	5.123	72.251			
8	.831	4.890	77.141			
9	.675	3.972	81.113			
10	.671	3.945	85.058			
11	.597	3.512	88.570			
12	.488	2.869	91.439			
13	.415	2.438	93.877			
14	.370	2.174	96.051			
15	.282	1.657	97.708			
16	.215	1.263	98.971			
17	.175	1.029	100.000			

*Extraction Method: Principal Component Analysis.*

The other criterion used was **Scree Plot** analysis which involved the inspection of the point at which the curve changes direction and becomes horizontal. All factors above the elbow were retained for principal component analysis.



**Fig 4.1 SCM Practices Scree Plot**

From Fig 4.1 above, five principal components were identified as shown in table 4.2.4 below. This analysis shows that managing customer-supplier relationships was the highest rated component under the study was managing customer-supplier relationships.

**Table 4.2.4 Component Matrix for Supply Chain Management Practices**

Factor	Component				
	1	2	3	4	5
Managing customer-supplier relationships	.688				
Supply chain collaboration	.627			-.424	-.443
Supply chain benchmarking	.604	-.378		-.346	
Lean Production	.596		-.331		.347
Training in supply chain issues	.571	.316			.362
Continuous Improvement	.569		.329		
Agile Production	.567		-.402		
Supply chain design	.563				
Information sharing between supplies & customers in supply chains	.543		.311		
Just-In-Time (JIT)	.530	-.487			.353
Internal systems and operations	.319	.623			
Supply chain integration	.445	.525			-.303
Supplier partnerships	.438	.494	-.320	.314	
Vendor Managed Inventory (VMI)	.442	-.453	.313	.342	
Information Technology		.300	.643		
Inventory Management	.335	.393	.491		
Formation of Strategic Alliances	.331			-.585	.302

***Extraction Method: Principal Component Analysis. 5 components extracted.***

A further analysis of the data involved factor rotation and interpretation. Orthogonal rotation was preferred due to ease of interpretation and reporting. Varimax rotation technique was used which minimized variables with high loadings on each factor. Factors loading near 1 were considered in each component extracted. Those loading near zero

were not considered. Factor loadings on component 1 indicated that supply chain benchmarking and Just-Time (JIT) concepts should determine the success of SME supply chains. Factor loadings on component 2 indicated that internal systems and processes was an important SCM practice.

Varimax rotation for Supply Chain Management Practices shows variables loadings on each of the components in table 4.2.6.

**Table 4.2.5 Rotated Component Martrix**

Factor	Component	
	1	2
Supply chain benchmarking	.712	
Just-In-Time (JIT)	.711	
Vendor Managed Inventory (VMI)	.620	
Continuous improvement	.618	
Managing customer-supplier relationships	.610	.325
Information sharing between supplies & customers in supply chains	.575	
Agile Production	.561	
Supply chain design	.534	
Supply chain collaboration	.530	.335
Lean Production	.453	.394
Internal systems and operations		.695
Supply chain integration		.685
Supplier partnerships		.655
Training in supply chain issues		.581
Inventory management		.513
Formation of strategic alliances		.415
Information technology		.406

***Extraction Method: Principal Component Analysis.***

***Rotation Method: Varimax with Kaiser Normalization.***

In line with the research objectives this study established that SMEs were implementing all the SCM practices under study. The study revealed that all the seventeen SCM practices identified were important to a great extent. In particular, managing customer-supplier relationships, information sharing and continuous improvement were the highest rated practices. These findings are supported by a number of past studies in SCM. Awino and Wainana (2009) carried out a study on SCM best practices of large private manufacturing enterprises and identified linkages within supply chain firms, customer relations, strategic alliances and information technology systems to be among the SCM best practices. This implies that SCM practices among manufacturing and non-manufacturing large enterprises and SMEs are related save for extent of importance. Valmohammadi (2013) had identified inadequate information sharing as a barrier in supply chain management. This means that information among customers and suppliers is an important SCM practice. Lofti *et al* (2013) concluded that lack of information sharing in SC results in inefficiency of coordinating activities within the company or organization.

Abdifatah (2013) identified continuous improvement to be an important SCM practice among humanitarian organizations in Kenya. Chai, T.A, *et al* (2012) concluded that building closer relationships with customers and suppliers have helped SMEs to develop resilience in diversity despite the constraints faced by the SMEs. Kagira E. K *et al* (2012) identified improving supplier and customer relationships, adoption of Information Technology, information sharing, training and flexibility as some of the SCM practices which if properly implemented could address the SCM challenges.

### **4.3 Supply Chain Management Benefits**

#### **4.3.1 Rankings**

The second objective of the study was to determine the benefits of adopting SCM practices by the office supplies firms. On a scale of 1-5 the respondents were asked to indicate the degree of importance of each of the sixteen (16) SCM benefits to their businesses. In the scale, 1=Greatly Unimportant 2= Fairly Unimportant, 3=Important (3), 4=Fairly Important and 5=Greatly Important. Table 4.2 below indicates the rankings of

the SCM benefits in the order of the degree of importance. The study was able to determine that increased response to customer needs (4.58), increased coordination with customers (4.56), increased sales (4.54) and increased coordination with suppliers (4.51) are the most highly rated SCM benefits, an indicating that they were the greatly important SCM benefits to a great extent going by the relatively high scores above 4 (Fairly Important). All the other benefits also had higher weighted means an indication that they were also equally important to the SMEs under study. Accurate costing was found to be an important benefit with the lowest weighted mean of 3.20.

**Table 4.3.1 Rankings of Supply Chain Management (SCM) Benefits**

<b>Rank</b>	<b>SCM benefits</b>	<b>Weighted arithmetic mean</b>	<b>Standard Deviation</b>
1	Increased response to customer Needs	4.58	0.0283
2	Increased coordination with customers	4.56	0.0266
3	Increased Sales	4.54	0.0232
4	Increased coordination with suppliers	4.51	0.0187
5	Better quality information	4.40	0.0076
6	Better quantity information	4.33	0.0032
7	Increased coordination between departments	4.30	0.0020
8	Increased flexibility	4.26	0.0006
9	Cost Savings	4.22	0.1981
10	Increased Efficiency	4.20	0.0000
11	Resource Planning	4.15	0.0004
12	Reduced Uncertainty	4.07	0.0033
13	Reduced inventory cost	4.05	0.0046
14	Reduced lead time	3.95	0.0122
15	Accurate forecasting	3.89	0.0189
16	More accurate costing	3.20	0.0001

**Source: *Research data, 2014***

#### 4.3.2 Factor Analysis for Supply Chain Management Benefits

This analysis involved an inspection of Correlation Matrix for evidence of coefficients greater than 0.3. KMO Index & Bartlett's test of sphericity was used to test the strengths in correlation matrix.

The data was further subjected to Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy whose value is required to be above 0.6 and Bartlett's Test of Sphericity whose value should be significant at below 0.05. These results therefore that factor analysis is appropriate since the KMO value was 0.799 and Bartlett's significance value was 0.0000.

**Table 4.3.2 SCM Benefits KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.799
Bartlett's Test of Sphericity	Approx. Chi-Square	586.363
	Df	120
	Sig.	.000

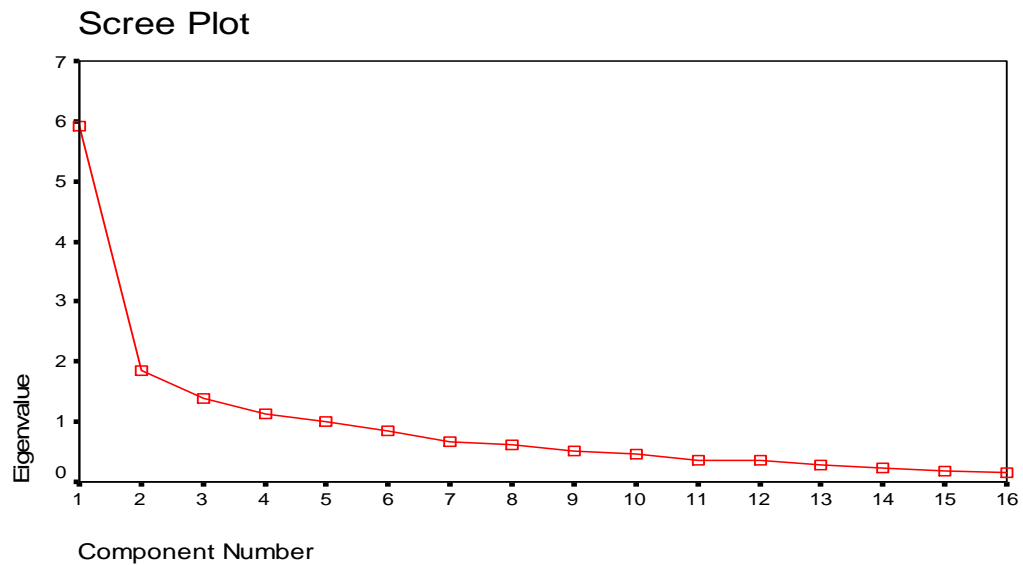
The second step involved Factor Extraction under Principal Component Analysis. This process involved the use of **Kaiser's criterion (Eigenvalue rule)**. Under this criterion, only those factors with eigen value of 1.0 or more were retained for further analysis. From the results, the first five components explained about 71% of the variance, while the remaining 11 components explained about 29% of the variance.



**Table 4.3.3 SCM Benefits Total Variance Explained**

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.927	37.041	37.041	5.927	37.041	37.041
2	1.852	11.573	48.615	1.852	11.573	48.615
3	1.401	8.757	57.371	1.401	8.757	57.371
4	1.129	7.059	64.430	1.129	7.059	64.430
5	1.000	6.251	70.681	1.000	6.251	70.681
6	.842	5.259	75.941			
7	.669	4.183	80.123			
8	.607	3.795	83.918			
9	.522	3.265	87.184			
10	.473	2.953	90.137			
11	.371	2.319	92.456			
12	.353	2.204	94.661			
13	.285	1.780	96.441			
14	.233	1.455	97.896			
15	.188	1.176	99.072			
16	.149	.928	100.000			

*Method: Principal Component Analysis.*



**Fig 4.2 SCM Benefits Scree Plot**

From Fig 4.2 above, five principal components were identified as shown in table 4.3.4 below. This analysis shows that increased sales were the highest rated component under the study. SMEs find increased sales to be a SCM benefit which is greatly important to their business.

**Table 4.3.4 Component Matrix for Supply Chain Management Benefits**

Factor	Component				
	1	2	3	4	5
Increased sales	.829				
Better quality information	.794		-.322		
Better quantity information	.718				-.376
More accurate costing	.716			.396	
Increased coordination between departments	.662				
Increased flexibility	.606	.400	.451		
Better Operating efficiency	.605		.323		
Reduced uncertainty	.594	.380	-.418		
Increased coordination with supplier	.568	-.361			
Reduced lead time	.563	.342			.450
Resource Planning	.540	-.336		.495	
Increased coordination with customers	.552	-.649			
Increased response to customers' needs	.544	-.611			
Cost saving		.520	.359	.482	
Accurate forecasting	.526		.607		
Reduced inventory costs	.463			-.508	.497

***Extraction Method: Principal Component Analysis with five components extracted.***

Table 4.3.5 shows Varimax Rotation for Supply Chain Management benefits shows variable loadings on each of the components. From the results, factor loadings on component yield better results than factor loadings component 1. Increased coordination with customers and increased response to customer needs have the highest factor loadings near 1 on component 2. These finding seem to support the findings of the descriptive analysis to a great extent.

**Table 4.3.5 Rotated Component**

Factor	Component	
	1	2
Increased flexibility	.721	
Reduced uncertainty	.700	
Increased sales	.695	.460
Better quality information	.691	.411
Reduced lead time	.652	
Better quantity information	.609	.391
Accurate forecasting	.557	
Better Operating efficiency	.548	
Increased coordination between departments	.479	.459
Cost saving	.475	
Increased coordination with customers		.852
Increased response to customers' needs		.818
Increased coordination with supplier		.641
Resource Planning		.604
More accurate costing	.500	.517
Reduced inventory costs	.300	.362

***Extraction Method: Principal Component Analysis.***

***Rotation Method: Varimax with Kaiser Normalization.***

This study established that implementing SCM practices yields a number of benefits. In this study, the most important benefits were identified as increased response to customer needs, increased coordination with customers and increased sales. These finds are supported by previous studies some of which are discussed here. Naslund and Williamson (2008) concluded that better customer service and reporting as universal SCM benefit. Venkateshwarlu and Akula (2013) conducted a study on iron and steel and cement and agriculture industries regarding the benefits derived from using SCM practices and concluded that there was no significant difference between the industries. These findings seek to support the fact that implementing SCM practices can deliver benefits regardless of the industry or sector.

## **4.4 Supply Chain Management Challenges**

### **4.4.1 Factor Rankings**

The last of the study was to establish the SCM challenges facing office supplies SMEs in Nairobi. Using a scale of 1-5, where 1=to no extent at all, 2= to a little extent, 3=to a moderate extent, 4= to a great extent and 5=to a very great extent, respondents had been asked to indicate the extent to which they had encountered each of the fourteen SCM challenges in their businesses. Table 4.3 below indicates the rankings of the SCM challenges in the order of the extent to which they are encountered by the SMEs. It was determined that SCM challenges had a “moderate” effect on the SMEs.” The study also shows that high interest rates (4.47) and high cost of raw materials (4.00) were the highest rated challenges. The other challenges had weighted arithmetic means lower than 4, an indication that the challenges were encountered a “moderate extent”. Global climate change with a score of 2.36 out of 5 and access to modern technology core of 2.26 out of 5 were found to be the factors that had been least encountered by the SMEs that had responded to the question.

**Table 4.4.1 Rankings of Supply Chain Management (SCM) challenges**

<b>Rank</b>	<b>SCM challenges</b>	<b>Weighted arithmetic mean</b>	<b>Standard deviation</b>
1	High interest rates	4.47	0.632
2	High cost of raw materials	4.00	0.3432
3	High cost of doing business	3.86	0.2747
4	Low profit margins	3.82	0.2536
5	Lack of government support	3.71	0.2098
6	High cost of energy	3.60	0.1656
7	Foreign exchange	3.34	0.0838
8	Increasing customer expectations	3.10	0.0344
9	Global financial crisis	3.04	0.0238
10	Access to domestic markets	2.92	0.0105
11	Lack of training	2.73	0.0003
12	Lack of supply chain partnerships	2.56	0.0032
13	Global climate change	2.33	0.0254
14	Access to modern technology	2.25	0.0382

***Source: Research data, 2014***

#### **4.4.2 Factor Analysis for Supply Chain Management Challenges**

This analysis involved an inspection of Correlation Matrix for evidence of coefficients greater than 0.3. KMO Index & Bartlett's test of sphericity was used to test the strengths in correlation matrix.

The data was further subjected to Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy whose value is required to be above 0.6 and Bartlett's Test of Sphericity whose value should be significant at below 0.05. These results therefore that factor analysis is appropriate since the KMO value was 0.760 and Bartlett's significance value was 0.0000.

**Table 4.4.2 SCM Challenges KMO and Bartlett's Test**

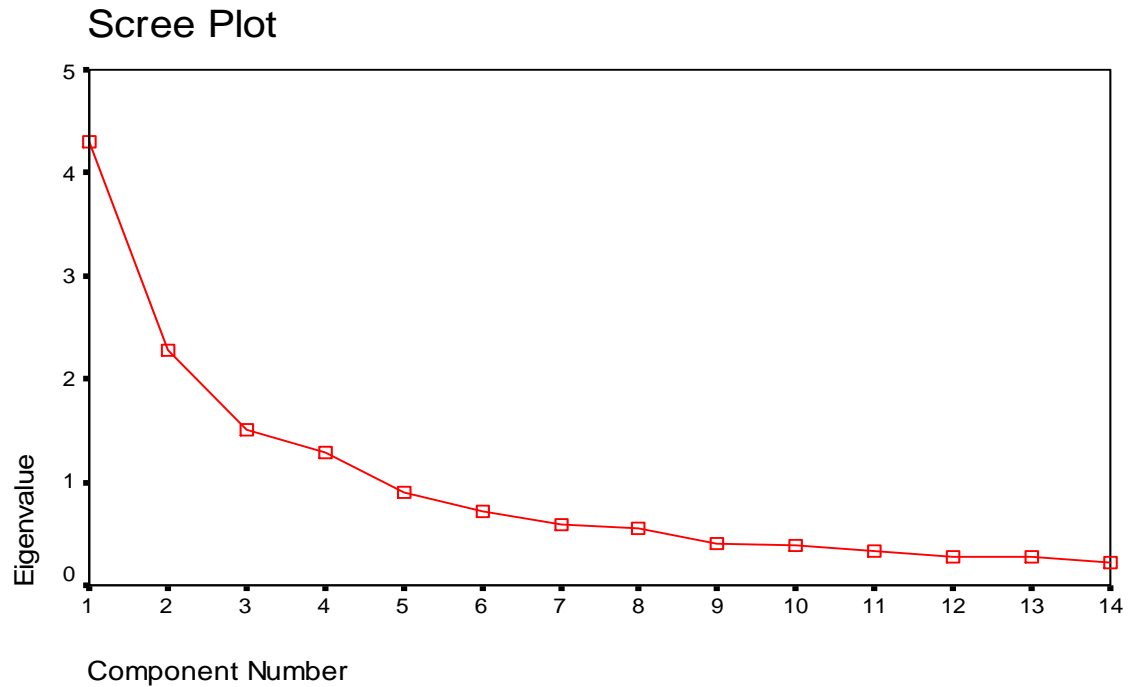
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.760
Bartlett's Test of Sphericity	Approx. Chi-Square	417.762
	Df	91
	Sig.	.000

The second step involved Factor Extraction under Principal Component Analysis. This process involved the use of **Kaiser's criterion (Eigen value rule)**. Under this criterion, only those factors with eigen value of 1.0 or more were retained for further analysis. From the results, the first four components explained about 67% of the variance, while the remaining 10 components explained about 33% of the variance.

**Table 4.4.3 SCM Challenges Total Variance Explained**

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.296	30.687	30.687	4.296	30.687	30.687
2	2.275	16.253	46.940	2.275	16.253	46.940
3	1.505	10.749	57.689	1.505	10.749	57.689
4	1.280	9.146	66.835	1.280	9.146	66.835
5	.896	6.398	73.233			
6	.709	5.064	78.297			
7	.584	4.171	82.468			
8	.555	3.965	86.433			
9	.413	2.951	89.385			
10	.386	2.759	92.143			
11	.333	2.380	94.524			
12	.275	1.964	96.488			
13	.268	1.912	98.399			
14	.224	1.601	100.000			

*Extraction Method: Principal Component Analysis.*



**Fig 4.3 Scree Plot for SCM Challenges**

From Fig 4.3 above, four Principal components were identified as shown in table 4.2.4 below. This analysis shows that high cost of doing business, high cost of raw materials, global financial crisis and high cost of energy were the highest correlation coefficients and were therefore extracted and retained for further analysis. Access to modern technology had the lowest correlation coefficient hence was not extracted alongside the others.

**Table 4.4.4 Component Matrix for SCM Challenges**

<b>Factor</b>	<b>Component</b>			
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
High cost of doing business	.747	-.398		
High cost of raw materials	.714	-.318	-.371	
Global Financial crisis	.639			-.566
High cost of energy	.619		-.339	-.368
Lack of government support to SMEs	.582		.410	
Access to domestic markets	.580			
Foreign exchange rate fluctuation	.571		-.476	
Low profit margins	.544	-.479	.375	
Global Climate Change	.518	.355		-.465
Lack of training in supply chain management	.371	.625	.416	
High interest rates on loans	.467	-.614		
Access to modern technology	.308	.523	-.462	.315
Increase customer expectations	.449	.478		.329
Lack of supply partnerships	.468	.472	.367	

***Extraction Method: Principal Component Analysis.***

Supply chain management challenges were also subjected to Factor analysis using Varimax rotation. Table 4.4.6 shows Varimax Rotation for Supply Chain Management Challenges shows variables loadings on each of the components. From this analysis, lack of training in supply chain management and high cost of doing business had the highest factor loadings near 1 on components 3 and 1, respectively. SMEs thus consider lack of training and high cost of doing business to be a major challenge. Access to modern technology was established to be the least important challenge. These findings of varimax rotation support the results of the weighted arithmetic mean in descriptive analysis.



**Table 4.4.5 SCM Challenge Rotated Component Matrix**

<b>Factor</b>	<b>Component</b>		
	<b>1</b>	<b>2</b>	<b>3</b>
High cost of doing business	.805		
Low profit margins	.797		
High interest rates on loans	.713		
Lack of government support to SMEs	.680		.337
Foreign exchange rate fluctuation		.728	
Access to modern technology	-.302	.661	
High Cost of raw materials	.582	.635	
High cost of energy	.389	.600	
Increase customer expectations		.579	.384
Access to domestic markets		.440	.342
Lack of training in supply chain management			.832
Lack of supply partnerships			.749
Global Climate Change			.650
Global Financial crisis		.348	.511

***Extraction Method: Principal Component Analysis.***

***Rotation Method: Varimax with Kaiser Normalization.***

In line with the objectives, the study determined that SMEs in Nairobi had encountered SCM challenges to a moderate extent. Both descriptive and factor analysis determined that the biggest challenge experienced was the high cost doing business. These findings support previous studies which are discussed in this paragraph. Hamisi (2011) identified high transportation and logistics costs as one of the challenges of SMEs in Tanzania. In this study, this challenge is covered under high cost of doing business. According to Kagira, *et al* (2012), poor access to information, lack of training, high cost of inputs and other operating costs are some of the major challenges in implementing SCM practices. These changes were also established by this study. These findings are further supported by a study conducted by Kimani (2013), which established SCM challenges to be information technology, supply chain design and partnership/collaboration. These challenges were found to have a positive impact in implementing an affective SCM. High interest rates on loan hinder access to financial resources since SMEs have limited

financial capabilities, hence limit their access to financial resources from financial institutions. Abdifatah (2013) identified lack of financial resources as a major challenge facing humanitarian organizations in Kenya. The relatively low score on most of the challenges may indicate that SMEs are capable of responding quickly to the challenges since they are fairly small and flexible. The organization structures are fairly flat thus facilitating easier decision making. Chai, T. A, *et al* (2012) concluded that flat organization structures of SMEs can facilitate the changes of SCM implementation. He also concluded that small firms innovate more than twice per employee than do monolithic firms.

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

### **5.1 Introduction**

The aim of this study was to establish the SCM practices, determine the benefits and establish the challenges encountered by office supplies in adopting SCM practices. This chapter presents a summary of the major findings arising from the data analysis. The chapter then draws some conclusions made upon a careful consideration of the results of the study. The chapter also highlights the suggestions and recommendations for further research.

### **5.2 Summary of Findings**

This study was based on three objectives. The study went ahead to confirm that SMEs, just like LEs have to a large extent adopted SCM practices. It was found that all the practices were important to a “very great extent” in SME supply chains. The study found that managing customer-supplier relationships was being practiced by all most of the SMEs.

The study also found that implementation of the SCM practices was delivering a number of benefits to the SMEs. Increased response to customer had the highest weighted score. This implies that enhanced response to customer needs can help win customer confidence and also cope with increased competition during the hard economic times.

Implementing SCM practices was not without challenges. This study had sought to establish the challenges encountered in implementing the practices. The study confirmed that challenges were being felt but to a “moderate extent”. The major challenge was established to be the high interest rates. Due to their weak financial resource bases, access to financial resources by SMEs remains a challenge because the financial institutions consider SMEs to be risky borrowers.

### **5.3 Conclusions**

SMEs in Nairobi have to a large extent implemented SCM practices with a lot of success. The practices had an overall rating translating into a great extent. The SMEs have also benefitted from implementing the SCM practices. The benefits arising from the practices were very important to the SMEs. However, the degree of importance was found to vary among the SMEs. SCM practices being an emerging trend are still prone to a number of Challenges. This study was able to determine the challenges facing SMEs in adopting SCM practices. The challenges were however affecting the SMEs to a moderate extent.

### **5.4 Recommendations**

This study has established the SCM practices, benefits and challenges faced by the SMEs. Based on the results and findings of this study, there is need for SMEs to embrace the practices since SMEs just like any other business operate in a dynamic business environment. There is need for continuous improvement in order to improve the quality of their products and respond to ever increasing customer needs. They need to embrace SCM best practices such as benchmarking, supply chain collaboration and formation of strategic alliances in order to achieve a competitive advantage. Adoption of best practices will enable the SMEs to mitigate the likely impact of the internal and external challenges. One limitation of this study was lack of clear database of the office supplies SMEs. Given the crucial role of the SMEs in the growth of the national and county economies, the Department of Internal Trade and National Chamber of Commerce and Industry need respond to the limitation by developing a reliable database of all the SMEs in this line of trade.

### **5.5 Limitations**

This study was not without limitations. During data collection it was discovered that some of the respondents had little information of SCM practices, although they had adopted some of them in their businesses. The study had also relied upon the Office Equipment and Supplies listed in the Nairobi online business directory as the sole source of the population. During field visits it was surprising that some of the businesses had moved to new locations and therefore could not be traced. It was also noted that some of

the telephone contacts were no longer in service hence some of the business were untraceable. Since the questionnaire was self-administered some respondents returned incomplete questionnaires, hence posed difficulty in adequately analyzing the questionnaires.

## **5.6 Suggestions for Further Research**

Since this study was faced by a number of limitations, the researcher wishes to recommend that further studies be conducted relating the SCM practices to the supply chain performance of SME supply chains.

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## APPENDIX I: QUESTIONNAIRE

**Instructions :** *This questionnaire contains four parts (I, II, III and IV) spread in four (4) pages. Please answer all the questions in each section. The instructions for responding to the questions have been provided against each question.*

### PART I: General Information

1. Name of Business (*Optional*) .....
2. Position held by the respondent (e.g. Owner, Operations Manager, Sales Manager, etc) .....
3. Age of business since registration (Please tick one)  
  
Less than 1 year ( )    1-5years ( )    5-10 years ( )    Over 10 years ( )
4. Is the business registered? Yes ( )                      No ( )
5. If your answer to Q4 above is yes, please indicate the registering body. (Please tick only one)  
  
Registrar of Business Names ( )  
Registrar of Companies/Companies Act ( )  
NGO Registration Bureau ( )  
Registrar of Societies ( )  
Other (specify) .....
6. Number of employees ( Please tick as appropriate )  
  
Less than 5 ( )              6-10 ( )              11-15 ( )              16-20 ( )              Over 20 ( )
7. The following are some of the office supplies merchandise of SMEs. Please indicate your areas of specialization (Please tick as many as may be applicable to your business).  
  
Office Equipment ( )  
Office furniture ( )  
Computer stationery and consumables ( )  
General Office stationery and consumables ( )  
Other (Specify) .....

**PART II: Supply Chain Management Practices of Small and Medium Enterprise (SME) Office Supplies firms in Nairobi**

The table below shows some of the most common supply chain management practices. On a scale of 1-5, please indicate the extent of use of each practice (s) that your firm has been implementing and the relative importance. *(1= to no extent at all 2= to a little extent 3= to a moderate extent 4= to a great extent and 5= to a very great extent)*

Supply chain management practices	Rating				
	1	2	3	4	5
Supply chain collaboration					
Supply chain benchmarking					
Information Sharing between suppliers and customers in supply chains					
Continuous improvement					
Supply Chain Design					
Supply Chain integration					
Supplier partnerships					
Internal systems and operations					
Information technology					
Inventory management					
Training in supply chain issues					
Formation of strategic alliances					
Managing customer-supplier relationships					
Lean production					
Agile production					
Just- In- Time (JIT)					
Vendor Managed Inventory (VMI)					
Others (Specify)					

### PART III: Benefits of Supply Chain Management

The table below shows some of the most common supply chain management benefits. On a scale of 1-5, please indicate the degree of importance of the benefits associated with the implementation of supply chain management practices in your business. (*1=Greatly Unimportant 2= Fairly Unimportant 3=Important 4= Fairly Important and 5=Greatly Important*)

Supply chain management benefits	Rating				
	1	2	3	4	5
Increased sales					
Better quality information					
Better quantity information					
Reduced uncertainty					
Reduced lead time					
Increased flexibility					
Cost saving					
Accurate Forecasting					
Better Operating efficiency					
Reduced inventory costs					
Increased coordination between departments					
More accurate costing					
Resource planning					
Increased coordination with supplier					
Increased coordination with customers					
Increased response to customer needs					
Others (specify)					

#### **PART IV: Supply Chain Management challenges of Office Supplies SMEs**

The table below shows some of the challenges encountered by business firms while implementing supply chain management practices. On a scale of 1-5, please indicate extent to which the supply chain management challenges have been experienced in your business. (*5=to a very great extent 4= to a great extent 3=to a moderate extent 2= to a little extent and 1=to no extent at all*)

Supply Chain management challenges	Rating				
	1	2	3	4	5
Access to modern technology					
Increasing customer expectations					
Access to domestic markets					
Lack of supply partnerships					
Lack of training in supply chain management					
High cost of doing business					
Low profit margins					
Lack of government support to SMEs					
Global financial crisis					
Global climate change					
High cost of energy					
High cost of raw materials					
Foreign exchange rate fluctuations					
High interest rates on loans					
Others (specify)					

Any other comments.....

.....

**Thank you for your time, cooperation and participation!**

## **APPENDIX II:**

### **LIST OF OFFICE EQUIPMENT AND SUPPLIES FIRMS IN NAIROBI**

Afro Kent Office Equipment	Centrifugal Technologies Ltd	Siany Office Supplies
All Round Technical Services	Lapimar Agencies	Sian King
Aloscar General Supplies	Latima Agencies	Sai Office Supplies
Aston Office Supplies	Lucy Office Supplies	Ofsta Supplies
Baltech Equipments Ltd	Lynn's Enterprises Limited	Linoafrica
Bengo General Agencies Ltd	MIBM Ltd	Wasen Enterprises
Borland Agencies	Magnolia Office Supplies	Swift Office Supplies
	Mailcom Comp & Office	Kenya Toner and Ink
Bititec Systems and Supplies	Supplies	Supplies
Brent East Africa Supplies	Modern Office Supplies	Haraka Stationers
Bridging Services and Global		
systems	Nasilon Holdings Limited	Capital Print
Centroline General Supplies	Nembu Agencies	Dolphin Stationers Ltd
Copycat Limited	Nyathy Enterprises	Pacific Stationers
Copyguard (K) Ltd	Nzouni Enterprises	Capricorn Stationers
Copyline (K) Ltd	Parock Enterprises	Olympic Stationers
Corporate Business Forms	Patmac Business Systems	Optional General Supplies
Cyan Office Supplies	Presta & Office Equipment	Rainbow Manufacturers Ltd
Dakwa Agencies	Office Centre, The	Rieko Enterprises
Digital Communications	Office Dynamics Limited	Imageplus Limited
Dorek Office Supplies	Officemart Ltd- HQ	Sysconet Systems
East Africa Office Equipment Ltd	Office Technologies Ltd	Happyland Stationers
Editon Lab & Office Supplies	Primeafrica Enterprises	Ramco Printing Works
Electronics Technology Group	Prioss	Elite Book Centre
Elite Interiors and Office Supplies	Rick Office Solutions	Computerways Ltd
Erivine Business and Computer		
Centre	Rubima Office Solutions	Seal Honey Ltd

Eureka Office Supplies Ltd	Selex International	Allvian Media Services
Fastchoice Ltd	Sharp Office Technologies	Ribcart Stationers
Fleet and Fuel Technologies	Sharp Products (K) Ltd	Arcnet Technologies
Four Series Ltd	Square M Services	Arcade Stationers
Frontier Tech Systems	Stasean Enterprises	Ricky Stationers
Gatoi Company	Stazone Office Supplies	All Sevens Limited
General Office Technology Ltd	Swiftsmart Technologies Ltd	Office2000plus
Geojak	Tomaric Supplies	Sciencescope Ltd
Goldmark Office Supplies	Toner Mart Technologies	Infocom Ltd
Hightech Info Systems	Umoja Technical Systems	Speedmark
IT Zone Office Supplies Ltd	Universal Digital Systems	Qualitywise
		Visiontech World
Ibico (K) Ltd	Valere Business Systems Ltd	
	Victoria Home & Office	
Interworld Office solutions	Supplies	Gauma Enterprises
Jeomar Office Supplies	Waswaki Technical Solutions	Kambwe Printers
Insyque Ltd	Wayrren Enterprises	Cyan Office Supplies
Kawasaki Office Products	Winacom Enterprises	
Keni Office Supplies	Youngtronics & Equipment (K) Ltd	
Kenmark General Supplies	Zeta Office Products	
Keyboard Business Systems	Jolly Office Supplies	

*Source: e-Business Directory, June 2014*

**APPENDIX III:**  
**INTRODUCTION LETTER**