

**PROCUREMENT RISK MANAGEMENT PRACTICES AND
SUPPLY CHAIN PERFORMANCE OF MOBILE PHONE SERVICE
PROVIDERS IN KENYA**

SUBMITTED BY:

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**A Research Project submitted in partial fulfillment of the requirement
for the award of the Degree of Master of Business Administration,
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DECLARATION

I declare that this research project is my original work and has never been submitted to any other University for assessment or award of a degree to any other University.

Signature..... Date.....

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D61/62105/2010

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

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DEDICATION

To my family, for your love, prayers and support

ABSTRACT

The study was conducted to establish the relationship between procurement risk management practices and supply chain performance among mobile phone service providers in Kenya. The study had two objectives to achieve: to establish the extent to which mobile phone service providers have implemented procurement risk management practices and to find the relationship between procurement risk management practices and supply chain performance. In order to satisfy the objectives of the study, a survey was conducted in all the four mobile telecommunications companies in Kenya. The research design was a descriptive study. Data was collected using a questionnaire that was administered through drop and pick later method. Means and standard deviation were used to analyze objective one whereas regression analysis was used to analyze the relationship between procurement risk management practices and supply chain performance. The findings were presented in tables, pie charts and bar charts. The study established that most of the mobile phone service providers in Kenya implement procurement risk management practices. It was also clear that there was a very significant relationship between procurement risk management practices and supply chain performance represented by adjusted R^2 value of 0.646 which translates to 64.6% variance explained by the ten independent practices of Procurement Risk Management. The study recommended that further research on the same study can be done in other countries to establish whether implementing procurement risk management practices is able to yield the same effect on supply chain performance of mobile phone service providers. The study therefore recommends that all mobile phone service providers in Kenya should endeavor to fully understand the procurement risk management practices in order to drive them to undisputed performance of their supply chains. Procurement risk management practices are very dynamic and keeps on changing hence need to replicate the study in line with trends that may affect supply chain performance in mobile phone companies.

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ACRONYMS AND ABBREVIATIONS

ABC	Activity Based Costing
BSC	Balanced score Card
CA	Communications Authority of Kenya
CEO	Chief Executive Officer
CIPS	Certified Institute of Purchasing and Supplies
GDP	Gross Domestic Product
ICT	Information and Communication Technology
KPI's	Key Performance Indicators
PRM	Procurement Risk Management
SCOR	Supply Chain Operations Reference
SCRM	Supply Chain Risk Management
SPSS	Statistical Packages for Social Sciences
UK	United Kingdom
UPS	Uninterrupted Power Supply
USAID	United States Agency for International Development
VAS	Value Added Services

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Given today's turbulent supply markets and volatile, pan-global business environment, corporate buyers need to make consistently superior decisions. Developing a formal, structured, risk management capability for procurement is an outstanding way to do just that (Accenture, 2010). One consequence of Procurement Risk Management (PRM) is that procurement risk has emerged as a comprehensive topic in its own right rather than being a facet of specific but fragmented procurement tasks. The benefit of this 'promotion' up management's agenda is the requirement for more clarity about what is 'procurement risk' and greater awareness that risks can lurk in areas where traditionally they have not been sought (Russill, 2008). According to survey results, the global recession made companies significantly more aware of the need for advanced risk management practices. 50% percent of responding companies gave more attention to procurement risk management in 2009 than they did in previous years (Accenture, 2010).

Dynamic supply chains believe in continuously improving performance. This has become a critical issue for many suppliers, manufacturers, and the related retailers who intend to achieve and sustain competitiveness. In practice, supply chain based companies such as Dell and Toyota, have used different performance management tools to support their supply chain strategies (Cai, Xiangdong and Zhihui, 2008). Its until around three decades ago when pioneers like Wal-Mart started to view their supply chain performance not as a cost minimizing tool but as their core competencies. Nowadays, we can see many major

companies (Dell, Amazon.com, UPS, and Zara, just to name a few among many others) whose supply chains play a key role in their competitive position in the market. Their primary goal is not necessarily minimizing the logistical costs. These companies exploit their novel supply chain designs and practices to satisfy their customers' need better than their competitors, and hence gain competitive advantage and higher profits (Elahi, 2010).

Aon's 2009 Global Risk management Survey includes supply chain failure in its top ten most pressing risks around the world. Interestingly, at least half of the risks in the top ten can be directly related to procurement activity, and hence would fall within the remit of Procurement risk management (Russill, 2008).

1.1.1 Procurement Risk Management Practices

Procurement risk exists for an organization 'when supply market behavior, and the organization's dealings with suppliers, create outcomes which harm company reputation, capability, operational integrity and financial viability'(Russill, 2008).

Accenture (2010) identifies these procurement risks as; a company's dependency on a supplier, unanticipated price volatility of raw material, supplier quality problems, supply chain disruptions, unanticipated price volatility through currency exchange rates, supplier bankruptcy, legal/regulatory issues and supplier dependency on a company. Procurement risk management practices are the measures taken including changes to behaviors, procedures and controls which remove procurement risks or reduce them to what is considered to be an acceptable level.' (Russill, 2008).

The risk management framework applied to procurement involves Risk anticipation, Risk monitoring and Risk Mitigation.

Accenture (2010) indicates that there is a need for a structured risk management capability within the procurement organization since procurement has become a major focal point for companies' risk management concerns. Wilson (2008) indicates that procurement risk management is as much an art as it is a science that should be running top on procurement's mind as a key management concern. Russill (2008) indicated that ignoring procurement risk management can have serious economic effects and the organization may underperform or may not survive, as a consequence.

Effective procurement risk management practice requires an understanding of the relationship between procurement and organizational objectives (CIPS 2013). Supply chain performance is the core competency tool for meeting the organizational objectives (Elahi, 2010). Volatility is expected to remain high within procurement's environment in the near future and it will affect supply chain performance. This implies that formal and sustained procurement risk management practices should be enacted to countermand that trend (Accenture, 2010).

1.1.2 Supply Chain Performance

Supply chain performance is defined as the entire chain's ability to meet end-customer needs through product availability and responsive, on-time delivery (Fisher, 1997). Simchi-Levi et al., (2003) defines it as the operational excellence to deliver leading customer experience. The performance of a supply chain is influenced by external factors, corporate supply chain factors and management of extended supply chain. Organizations have moved from individual company performance to supply chain

performance with a view of improving the bottom line performance of the entire chain (Vogel, 2011).

There are various studies on supply chain performance. Authors like Ramdas and Spekman (2000) looked at performance in view of Inventory, time, order fulfillment, quality, and customer focus and customer satisfaction. Li et al. (2005) looked into six construct approach of supply chain practices such as strategic supplier partnership, customer relationship, information sharing, information quality, internal lean practices and postponement. Gunasekaran et al. (2004) indicates that there are both financial and non-financial measures looking into process and management based metrics. Shepherd and Günter (2006) categorize supply chain performance measures into supply chain processes and quantitative or qualitative measures. Stewart (1995) indicated that Supply Chain Performance can be measured in the context of the following supply chain activities/processes: plan, source, make/assemble, and delivery/customer satisfaction. Gunasekaran et al. (2004) considers these activities at various levels of management - strategic, tactical, and operational levels. Smith (2012) indicated that supply chain system responds rapidly to changes in product volume demanded by customers and to changes in product mix demanded by customers. Kingori (2013) indicates that the Supply Chain Management is highly correlated with Supply Chain practices and e-Procurement applications.

The Key performance indicators (KPIs) of a supply chain's performance has both quantitative and qualitative aspects (CIPS, 2013). The achievement or non-achievement of these indicators can be directly traced to procurement practices. For example,

quantitative KPIs such as cost and time can be directly related to the cost of raw materials and delivery times by suppliers. Qualitative KPIs such as degree of satisfaction expressed by customers emanate from procurement's ability to develop the correct specifications on orders for resale. The performance of a supply chain is therefore mainly influenced by procurement practices.

1.1.3 Mobile Phone Service Providers in Kenya

The mobile phone service providers in Kenya are regulated by the Communications Authority of Kenya (CA). CA is mandated by law to license all systems and services in the communications industry, including telecommunications, postal/courier and broadcasting. The CA executes its mandate along with its establishing Act, The Kenya Communications Act (No. 2 of 1998) and as amended by the Kenya Communications (Amendment) Act, 2009. It provides the framework for regulating the communications sector in Kenya. (CA, 2014).

Mobile phone telephony service in Kenya started in the year 2000 when both Kencell (rebranded as Celtel in 2004 and Zain in 2008 and currently Airtel) and Safaricom were launched on 5th May and 19th October respectively (www.ca.go.ke). The two companies started off with a lot of competition right from the beginning with the great challenge of how to approach an unpredictable market with a very new service that had never been in Kenya. Safaricom's CEO, Michael Joseph chose to target the low income earners then while Kencell's then CEO chose the lucrative group in the market (Mayaka, 2009).

According to the Communications Authority's Q3 year 2013-2014 Quarterly sector report (period Jan – March 2014), there were four mobile phone service providers in Kenya as at March 2014; Safaricom Ltd which is 40% owned by the UK based Vodafone, 35% by the Kenyan government and public subscription of 25% , currently dominates the market with a market share of 67.7%. It is followed by Airtel which is owned by Bharti of India with a 16.5% market share. Telkom Orange which is partly owned by France Telecom and the Kenyan government, enjoys a 7.7% market share and the Indian based Essar Telecom's YU enjoys 8% market share. Other players in the mobile phone service industry include , the Value Added Services (VAS) companies, the businesses using mobile commercial products and of course the customers. Recently, CA issued Equity Bank Kenya with a mobile phone service operating license. This means that the bank can have its own mobile network through which it can undertake money transfer services. The move comes as a set to step up the battle for control of Kenya's multi-million shilling mobile money platform. Essar (YU) has however decided to exit the turbulent market with other mobile phone service providers in the country eyeing the purchase of their infrastructure.

The mobile phone service industry is among the fastest growing industries in the Kenya, by the end of March 2014, there were 31.8 million registered mobile cell phone subscribers with a projected growth rate of 6.8% per annum (CA, 2014). Currently, Kenya is ranked as one among the most advanced countries in the field of mobile telecommunication industry in Africa. The cellular phone industry in the country has continued to transform the lives of Kenyans, with increased penetration of on mobile subscriptions, mobile data services on 3G platform as well as mobile banking and

payment. The network is still growing and mobile operators are extending their coverage reaching even more remote areas of the country (CA, 2014).

Several studies have been carried out on the mobile phone service providers in Kenya. Waburi (2010) indicated that the mobile phone service providers have greatly contributed to the economic growth of the Kenyan economy. For several years running, the sector has emerged to be the leading source of government revenue through taxation. For example, in 2007, the sector remitted KShs4.8 billion in taxes to the exchequer, accounting for slightly higher than 10.89% of total GDP. Kamande (2010) indicated that mobile phone service providers have adopted several strategies which include cost leadership, differentiation, marketing strategies, diversification, expansion, technology strategies, customer service and corporate social responsibly that have all been successful to the companies. Gatobu (2012) indicated that Customer Relationship Management has a positive impact on sustainable competitive advantage within the mobile phone service industry in Kenya. Wachira (2012) indicated that there are several factors that would influence consumer choice of the mobile telephone service provider. D'silva (2012) outlines the strategic responses by Safaricom to competition within the mobile telephone industry.

1.2 Statement of the Problem

The interest of the study has been motivated by the gap between Procurement Risk Management practices and the research in this area. Procurement Risk Management practice entails taking measures which remove procurement risks or reduce them to what is considered to be an acceptable level including changes to behaviors, procedures and

controls. However, risk management in procurement requires efforts beyond what most companies are doing—and to identify leading practices, metrics and solutions (Accenture, 2010). Contemporary business organizations are finding it essential to develop procurement risk management practices in order to prepare for uncertainties in the supply and demand patterns and achieve a sustainable competitive edge. However, most Procurement functions have not moved as quickly to address supply chain efficiency as some organizations have demanded (KPMG, 2011). One of the most important achievements of procurement risk management practices is the ability to not only withstand market forces, but also capitalize on them and that has largely enhanced the performance of supply chains. Organizations are however more focused on Supply Chain risk management with little attention to procurement risk management.

The mobile telecommunications' supply chains have undergone major shifts during the past decade, and are still turbulent (Agrell, 2004). The mobile phone service providers in Kenya have also been faced by stiff competition due to globalization and advancement in technology (Gesimba, 2012). The bulk of the performance in the supply chains can be directly linked to procurement as a process. The exposures facing procurement can significantly disrupt the entire supply chain's performance through a company's drop in market share, drop in revenue, increase cost and negatively impact production distribution. The challenges portrayed above cannot be ignored because the mobile phone service industry in Kenya plays a significant role in the economy. To survive, in the industry, cellular mobile phone service providers have to keep up with the rapid pace of development and as a result, they are rapidly re-evaluating their operating models

and market strategies (Gesimba, 2012). To ensure sustained operational efficiency in the industry, procurement risk management practices ought to be put in place by the mobile phone service providers in Kenya.

A number of studies have been carried out on supply chain risk management and supply chain performance while there are no studies on procurement risk management practices and supply chain performance. For example Ghadge and Dani (2013) indicated that the systems approach for modeling supply chain risks predicts the failure points along with their overall risk impact in the supply chain network. This study has failed to indicate practices that can be carried out to mitigate these risks affecting supply chain performance hence there is need to know if procurement risk management practices have an impact on supply chain performance.

Another study conducted by Nourbakhshian et al (2013) who established that there are two set of risks in relation to SCRM. The first set of risks is in relation with the supplies and demands' being in accordance while the other set is related the causes of possible events like the strike of personnel or natural calamity. The study has outlined the risks but there are no indications of procurement risk management practices that can mitigate them. The gap in knowledge lies in identifying the risks as procurement risks.

Local studies have also been carried out on supply chain risk management and supply chain performance. Smith (2012) established that outsourcing plays a significant role in uplifting the supply chain performance of the mobile phone companies. This study was biased to outsourcing and hence addresses it as the only factor affecting supply chain performance. Osumo (2012) established that lead time variability has an impact on the

performance of supply chains both in the public and private sector. Elahi (2010) indicated that when a company seeks risk management capabilities from a strategic point of view, these capabilities can be leveraged to gain competitive advantage and overall organizational performance. These studies have failed to address procurement risk management practices that can be carried out to mitigate these risks affecting supply chain performance hence there is need to know if the mobile phone service providers in Kenya are aware of procurement risk management practices.

Therefore it is evident that the foregoing studies have not focused on the effect of procurement risk management practices on supply chain performance. To address this gap, this study focuses on the effect of procurement risk management practices on supply chain performance of mobile phone service providers in Kenya. The study seeks to answer the following questions: What procurement risk management practices have been implemented by mobile phone service providers in Kenya? What is the relationship between procurement risk management practices and supply chain performance among mobile phone service providers in Kenya?

1.3 Research Objectives

This study seeks;

- i. To determine the procurement risk management practices used by mobile phone service providers in Kenya
- ii. To determine the relationship between procurement risk management practices and supply chain performance of mobile phone service providers in Kenya

1.4 Value of the Study

The findings of this study will provide more knowledge for researchers and academicians who may be interested in studying the relationship between procurement risk management practices and supply chain performance.

The findings of the study can also enable procurement employees of the mobile phone service providers in Kenya to appreciate their role towards the performance of their supply chains.

Other service providers and institutions outside the mobile phone service domain will also benefit from the findings of this study since it will shed more light on the relationship that exists between procurement risk management practices and supply chain performance.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on the review of the various studies that have been conducted by other researchers on procurement risk management practices and supply chain performance. Among the areas reviewed include: Procurement risk management practices; supply chain performance as well as procurement risk management practices and supply chain performance. The chapter also provides the research gaps identified and a conceptual framework to show the relationship between the dependent and independent variables.

2.2 Procurement Risk Management Practices

A growing number of suppliers are running into financial trouble given declining orders, increasing raw material costs, and tightened credit markets. Yes, procurement needs to cut costs but perhaps in some companies the greater job is identifying troubled suppliers and moving to mitigate the risk (Wilson, 2008).

The business environment within which the mobile sector operates has been very volatile. Political anxieties, competition from new entrants, social reforms, technological advancement and globalization are some of the challenges that have greatly affected the growth of this sector. As such, it is very important for a company to establish a competitive advantage which is sustainable, meaning it is not easily eroded by

environmental changes or imitated by existing and potential competitors (Kamande, 2010). The procurement risk management practices include;

2.2.1 Developing a Procurement Strategy Practice

Accenture (2010) defines a procurement strategy as a plan or process developed to ensure procurement is designed to attract the strongest possible field of tenders for services, goods and products. It sets out to identify the effective means of procuring services to achieve commissioning requirements through developing a procurement plan, ensuring procurement supports delivery of vision and enabling creative approaches to procurement . Njuguna (2013), indicated that organizations should seek to have a strategic approach to procurement, this enhances effectiveness and efficiency in an organization's operations as well as saving revenue through effective sourcing, transaction cost reductions and standardized procurement processes. Accenture (2010) indicates that procurement masters are significantly more likely to address supplier and price volatility risks when developing their procurement strategies. Supplier and price volatility can affect supply chain performance metrics such as profitability, revenue and market share. Concerns about price volatility are nearly as prevalent as worries about supplier dependence within the mobile phone service industry in Kenya

2.2.2 Sourcing and Category Management Practice

ECR (1997) defines Category management as a Retailer-Supplier Process of managing categories as strategic business units, producing enhanced business results by focusing on delivering consumer value. It's a retailing and purchasing concept in which the range of products purchased by a business organization or sold by a retailer is broken down into

discrete groups of similar or related products; these groups are known as product categories. Accenture (2010) indicates that integrating risk management initiatives into the strategic sourcing process (e.g., during supplier evaluation) can help companies achieve procurement mastery using practices such as category management. The mobile phone service providers in Kenya can reduce the cost of buying goods and services, reduce risk in the procurement process, increase overall value from the supply base and gain access to more innovation from suppliers through category management. If applied effectively throughout an entire organization, the results can be significantly greater than traditional transactional based purchasing negotiations. Supply chain performance indicators include responsiveness, time between order placing and fulfillment and portion of back orders.

2.2.3 Supplier Relationship Management Practice

Berger, Gerstenfeld and Zeng (2003:10) indicated that many successful businesses are reducing their supplier base and making use of long-term partnerships to attain the same benefits that multiple sourcing provides. Procurement risk management masters also tend to be supplier relationship masters. Not only do they form deeper, more symbiotic connections, they also collaborate with suppliers to rapidly detect risk (Accenture, 2010). Creating closer, more collaborative relationships with key suppliers would enable the mobile phone service providers in Kenya to uncover and realize new value and reduce risks such as supplier quality problems. The key supply chain performance indicator is quality.

2.2.4 Workforce and Organization Practice

One practice of procurement risk management is to see that a particular team of procurement masters are assigned the risk management task as their sole responsibility in order for procurement and the entire supply chain to benefit from the risk management exercise. Accenture (2010) indicates that most companies do not assign procurement professionals to full-time risk management work. However, there are distinct differences among procurement masters, mid-range performers and low performers when it comes to centrally led coordination across regions: Procurement masters are far more likely than low performers to have developed a regionally dispersed but centrally led procurement risk management network having defined beforehand, and by function, who shall take part in mitigation plans when an incident occurs. The mobile phone service providers in Kenya would achieve more value from the procurement risk management process if the exercise was assigned to particular employees who specifically engage in full-time risk management work. The key supply chain performance indicator is overall customer satisfaction through; recovery, adaptability and level of customer complaints.

2.2.5 Multiple Sourcing Practice

Treleven (1987) defines Multiple sourcing as purchasing from two or more vendors an identical good or service. Pochard (2003) indicated that multiple sourcing is often cited as a possible solution to protect against “disruption in supply”. The continued competition in the mobile phone service market in Kenya could limit the cost of goods and services in the organizations and reduce dependency on the suppliers. Some of the benefits that the Mobile phone service providers in Kenya can achieve from multiple sourcing include;

Protecting the buyer during times of shortages or other emergencies, provide a back-up source, maintain competition, keep a market feeling, avoiding complacency on the part of a single supplier and meeting customer's volume requirements. Key supply chain performance indicators include; responsiveness, time between order placing and fulfillment and portion of back orders.

2.2.6 The Practice of Regular Negotiation with Suppliers

Regularly negotiating transactions can lead to satisfaction or dissatisfaction with the relationship on the part of the supplier and the business buyer. The mobile phone service providers in Kenya pursue competitive strategies to gain competitive advantage that allows them to outperform rivals and achieve average profitability. One of the strategies to achieve this is by regularly negotiating with suppliers. Suppliers can exercise a great deal of bargaining power in an industry by threatening to raise prices or reducing the quality of products. This power in turn squeezes profitability out of an industry if it is unable to recover these cost increases from its pricing (Kamande, 2010). Regular negotiation would enable the organizations manage their costs, maintain profitability and guard against effects of currency fluctuation and obsolescence. Key supply chain performance indicators include costs, responsiveness, time between order placing and fulfillment and delivery accuracy.

2.2.7 Risk Sharing Clauses/Back-to-back Contracts Practice

Accenture (2010) indicates that integrating risk sharing clauses in the contract is an effective risk management strategy in procurement. In a back to back contract the issue is

mostly related to warranties or Guarantees due to delays etc where in normal case the subcontractor always escape without a penny lost from his pocket and the Contractor has to bear the brunt. However, in a back to back case the subcontractor is not relieved of his responsibilities and shall have to fulfill his obligations. The mobile phone service providers in Kenya have also been faced by stiff competition due to the rapid advancement in technology (Gesimba, 2012). They would leverage themselves by engaging their key suppliers in back-to-back contracts especially where huge capital assets are involved such as the rapidly evolving network infrastructure. The key supply chain performance indicator here is cost.

2.2.8 Value Engineering Practice

McGinnis (2005) indicated that Value engineering is “Value analysis conducted at the design engineering stage of the product development process. Procurement can encourage suppliers to work closely with engineers on developing alternative bills of materials. Kamande (2010) indicates that the mobile phone service industry in Kenya is evolving fast. This is due to the rapidly changing needs of the customers in this sector. Contemporary customers are more informed and require efficient and faster service delivery than before. Some of the challenges that have greatly affected the delivery of service to the customer include the inability to develop products that meet specific customer needs as well as competitive service delivery from competitors. Value analysis/engineering would enhance products, production processes, services, and administrative processes of the mobile phone service providers. This would cultivate customer loyalty as well as a growing market share.

2.2.9 Insurance Practice

Christopher and Lee (2004) indicate that Managing risks in the modern environment is becoming increasingly challenging. Procurement should consider insurance as an option to leverage against uncertainties such as loss or damage to goods in transit or failure to meet liabilities of third parties. The mobile phone service providers in Kenya procure globally, high value capital infrastructure for managing the networks through base stations. However, today's Just-in-time globalized procurement is more vulnerable than ever before due to operational and external (natural and man-made) disruptions as well as natural disruptions that require insurance. Insurance may not be necessary for some aspects if the risks can be managed properly (CIPS, 2013).

2.2.10 Supply Chain Financing Practice

Supply chain finance allows a supplier to sell its invoices to a bank at a discount as soon as they are approved by the buyer. That allows the buyer to pay later and the supplier to secure its money earlier. Instead of relying on the creditworthiness of the supplier, the bank deals with the buyer – usually a less risky prospect (CIPS, 2013). Gesimba (2012) indicated that the mobile or cellular phone service industry in Kenya is an industry that is heavily dependent on information and communication technology (ICT). The wide use of cellular phones in social networking and the development of smart phones with superior computing and multimedia capabilities are some of the challenge that prompt them to continuously upgrade their network capacities and capability. This requires the organizations need to constantly obtain the latest capital intensive infrastructure to enable them meet the demands of their customers. CIPS (2013) indicates that Supply chain

finance is seen by many chain experts and managers as the great hope for easing problems with such high cost supplies. It is a risk management strategy that would allow both the buyer and the supplier to improve their working capital.

2.3 Supply Chain Performance

The supply chain performance measure is the process of qualifying the efficiency and effectiveness of the supply chain (Kess & Sillanpaa, 2011). Many firms look to continuously improve their operations to enhance core competitiveness using supply chain measurement (Gunasekaran, et al.2004). The key to successfully improving supply chain performance is to focus on those areas that are not only under-performing but, also, those that are aligned with the overall supply chain strategy (Aronovich et al, 2010). It is a continuous process that requires both an analytical performance measurement system, and a mechanism to initiate steps for realizing key performance indicators (KPI) goals.

To measure supply chain performance, there are a set of variables that capture the impact of actual working of supply chains on revenues and costs of the whole system. Some of the metrics for measuring supply chain performance include; profitability, revenue, market share, time to market, stock availability, stock turnover, efficiency, savings, order cycle times, on time delivery in full, customer satisfaction and employee motivation. (CIPS, 2013). The Key performance indicators (KPIs) of supply chain performance can have both quantitative and qualitative aspects. Quantitative KPIs include; cost, time and quantity. Qualitative aspects include; degree of satisfaction expressed by customers, proportion of outcomes rated satisfactory, proportion of requests and proposals responded to, how quickly they are responded to, scores on commitment to quality obtained via

attitude surveys, number of critical incidents illustrating irresponsible conduct, e.t.c (CIPS, 2013). After identifying KPIs, managers have to achieve improvement in them, through continuous planning, monitoring and execution. According to the results of selected KPIs' accomplishment, managers may create current reports on KPIs, to compare multiple plans of supply chain management. In this performance management cycle, there are many challenges, both in performance measurement and its improvement (Cai et al, 2008).

Many scholars have come up with various studies on supply chain performance measures. In order to study the large number of performance measures available, researchers have categorized them. Njuguna (2013) indicated that there are three major approaches for supply chain performance for the manufacturing industry and they include: management approach which focuses on the three levels strategic, tactical and operational (Gunasekaran *et al.*, 2004). Time based approaches identifies as most wide known supply chain management capability. It is identified as the important source of competitive advantage. Time is identified as the most accurate and useful measure. The organizations levels, strategic, tactical and operations use time measurement in terms of lead time, order cycle time, time- to market and other time measures (Sillanpää, 2010). Lastly qualitative and quantitative approaches-quantitative measures are cost that is distribution, manufacturing, inventory, incentive, warehouse and any other sensitivity cost that occur in the long-term. Resource utilization which covers labor, energy, machine and capacity where the under or over utilization of these resources is measured. Qualitative measures are quality, flexibility, visibility, trust and innovativeness. The type

of measure chosen must coincide with organizations strategic goal (Kess & Sillanpaa, 2011).

Neely et al. (1995) present a few of the categories in the literature, including: quality, time, flexibility, and cost. This categorization is a useful tool in systems analysis. For example, a model may be developed to improve one characteristic of a system, for example, time. The model may then compare manufacturing lead time or due-date performance by changing the system's configuration. In this way, a single type of measure has been chosen, time, but within this category, many different specific measures of time may be used. Thus, measures within a category can be compared and analyzed, so that performance measure selection within a category may be easier. Although with this approach, the performance category is already determined.

Gunasekaran et al (2004) presents a number of characteristics that are found in effective performance measurement systems, and can therefore be used in evaluation of these measurement systems. These characteristics include: inclusiveness (measurement of all pertinent aspects), universality (allow for comparison under various operating conditions), measurability (data required are measurable), and consistency (measures consistent with organization goals). Besides analyzing the measures based on their effectiveness, benchmarking is another important method that is used in performance measure evaluation. Benchmarking can be useful in that it can serve as a means of identifying improvement opportunities.

Gunasekaran (2004) also argues that a supply chain performance measurement system that consists of a single performance measure is generally inadequate since it is not inclusive, ignores the interactions among important supply chain characteristics, and

ignores critical aspects of organizational strategic goals. Strategic goals involve key elements that include the measurement of resources, output and flexibility. Resources measures (generally cost) and output measures (generally customer responsiveness) have been widely used in supply chain models. Although flexibility has been limited in its application to supply chains, many advantages exist to a flexible supply chain.

Gichuhi, (2011) indicated that Many metrics used in supply chain performance evaluation have been designed to measure operational performance, evaluate improved effectiveness, and examine strategic alignment of the whole supply chain management. However, since many measurement systems lacked strategy alignment, a balanced approach and systemic thinking, they had difficulty in systematically identifying the most appropriate metrics. The main focus for this paper will be qualitative and quantitative measures.

2.4 Procurement Risk Management Practices and Supply Chain Performance

A high-performance risk-aware procurement process provides the bonus of competitive advantage, with the ability to capitalize, rather than suffer, from the occurrence of unexpected events (Russill, 2008). Supply chain management is one of the most strategic functions of an organization which can be exploited to gain a sustainable competitive advantage in the marketplace. The revolutions in technology and business practices have also brought a revolution in the world of supply chain management by organizations (Gichuhi, 2011).

It is important now for corporations to search for new business paradigms to gain a sustainable competitive advantage in the marketplace. There are different examples

available such as Total Quality Management (TQM), Theory of Constraints (TOC), Supply chain management practices adopted by corporations for cutting costs, increasing performances, and beating the competition. Information is now a competitive advantage as well as a "challenge" for corporations in the marketplace (Gichuhi, 2011). Information has enabled firms to reengineer activities and practices for being competitive in the marketplace. The above revolutions have led to improvement in the performance of the supply chain. The supply chain consists of all the processes directly or indirectly involved in providing solutions to customer problems by firms. A supply chain of an organization includes manufacturer, supplier, and channel intermediaries like wholesalers/retailers. (Awad & Nassar, 2010a)

Accenture (2010) indicates that there is a need for a structured risk management capability within the procurement organization since procurement has become a major focal point for companies' risk management concerns. He identifies several procurement risk management practices that impact on the performance of the organization. For example, the use of procurement risk management practices such as dual sourcing and regular negotiations with suppliers to anticipate supply risks related to quality and supply chain disruptions.

CIPS (2013) describe the benefits that an organization can gain from procurement risk management. with an emphasis on the importance of procurement to an organization's strategic agenda, and the value the procurement profession can deliver to strategic commercial decisions. This includes contributing to decisions, such as the outsourcing of business processes and functions, which in some organizations may be taken

without the involvement of procurement expertise. Such decisions always have a positive impact on the performance of an organization's supply chain although the focus was not on supply chain performance.

Russill (2008) also provides a short guide to procurement risk management since in most organizations, procurement is not treated as a strategic tool in helping organizations gain competitive advantage. He explains that most companies are so focused on managing the people and assets employed in the business and on satisfying their customers that they fail to realize what is going on in their supply markets. Procurement risk management equips the organization with the ability to capitalize, rather than suffer, from the occurrence of unexpected events.

In conclusion, by integrating Procurement Risk Management in their activities, procurement professionals and practitioners will be better positioned to engage with top management concerning their organizations' strategic agenda and corporate governance. (CIPS, 2013). While the purported goal of procurement risk management is to derive a competitive advantage, it is not clear whether the procurement risk management practices of firms are always strategically aligned with their overall competitive strategy. It has also been found that the level of supply chain performance in a firm is positively and significantly associated with the firm's business performance.

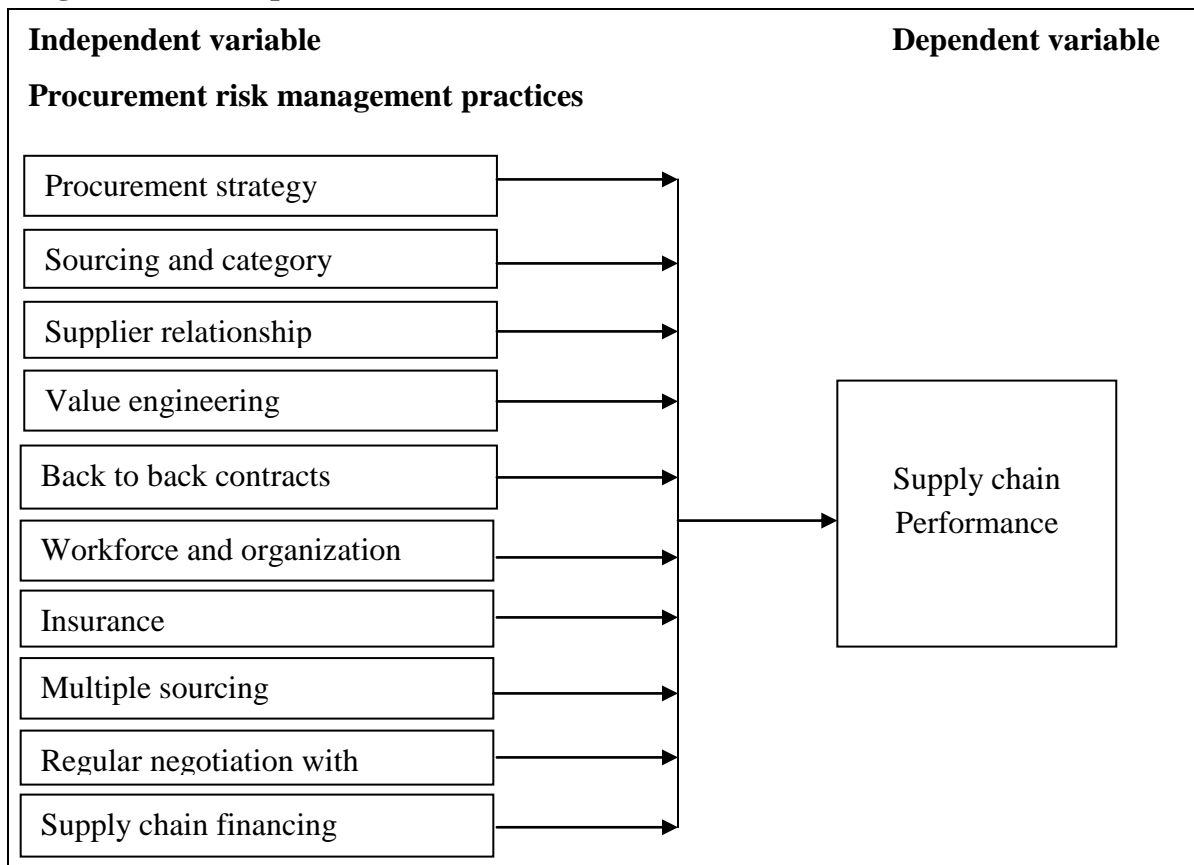
2.5 Conceptual Framework

The literature review confirms that a lot has been done on supply chain risk management and its benefits to the organization. Whereas supply chain risk management may cut across several enterprises in the entire supply chain, it may not be the case with

procurement risk management practices which focuses on the organization in question and its effects filter across to the entire chain. It is therefore clear that there is need to find out the effect of procurement risk management practices of an organization on its supply chain performance.

2.6 Conceptual Model

Figure 2.6: Conceptual Model



Source: Author (2014)

An efficient and effective supply chain will depend on availability of a procurement strategy; sourcing and category management; supplier relationship management; workforce and organization; multiple sourcing; regular negotiation; value engineering; back to back contracts; insurance and supply chain financing.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology that was applied in conducting the study. It includes the research design, target population, data collection procedures and instrument as well as data analysis techniques.

3.2 Research Design

The research adopted a descriptive approach and a cross sectional study. The design was considered the most appropriate since it ensured that the data obtained gave appropriate answers to the research question. A survey was used to collect information. Data collection was done using a structured questionnaire and data was collected from all the four mobile phone service providers.

3.3 Population

The target population of the study included all the 4 mobile phone service providers in Kenya. CA (2014) indicates that there were 4 licensed mobile phone service providers in Kenya as at 31st March 2014. The 4 mobile phone service providers were therefore the target population of the study. Five respondents were picked from each of the 4 mobile phone service providers to participate in the study. This included the Supply chain/procurement managers, the Supply chain/procurement officers and other officers in the same capacity such as category managers.

3.5 Data Collection

The researcher collected primary data from supply chain managers of all the 4 mobile phone service providers in Kenya and other persons within the same responsibility group. The data was collected by use of a structured questionnaire that was administered by drop and pick method. The questionnaire was in the form of Likert scale where respondents were required to indicate their views on a scale of 1 to 5.

The questionnaire contained 3 sections: Section A obtained data on the company profile; section B obtained data on the extent to which phone service providers in Kenya have embraced procurement risk management practices whereas section C obtained data on supply chain performance (See Appendix II).

3.6 Data Analysis

The collected data was sorted and entered into the statistical packages for social sciences for analysis (SPSS V20). Frequencies and percentages were used to analyze demographic data.

To address the first objective, descriptive statistics were used to establish the extent to which the Mobile phone service providers have adopted procurement risk management practices, i.e using mean scores and standard deviation. The findings were presented in tables, pie charts and barcharts.

To address the second objective, multiple regression model was used to determine the relationship between procurement risk management practices and supply chain performance.

The model used is as below (Gupta, 2000)

$$Y = \beta_0 + \beta_1 \chi_1 + \beta_2 \chi_2 + \beta_3 \chi_3 + \beta_4 \chi_4 + \beta_5 \chi_5 + \beta_6 \chi_6 + \beta_7 \chi_7 + \beta_8 \chi_8 + \beta_9 \chi_9 + \beta_{10} \chi_{10} + \epsilon$$

Where;

Y = Supply chain performance

x1 = Procurement strategy practice

x2 = Sourcing and category management practice

x3 = Supplier relationship management practice

x4 = Multiple sourcing practice

x5 = Workforce and organization practice

x6 = Regular negotiation with suppliers

x7 = Risk sharing clauses

x8 = Value engineering practice

x9 = Insurance practice

x10 = Supply chain financing practice

β_0 = (Alpha) constant or intercept

$\beta_1, \beta_2, \beta_3$ = Slope (Beta co-efficient) of independent variables (x1, x2, x3...)

ϵ = Error term

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the analysis of data collected from the administered questionnaires. The collected data was edited and cleaned for completeness in preparation for coding. Once coded, the data was entered into the Statistical Package for Social Sciences (SPSS) for analysis. Descriptive statistics such as mean and standard deviation were used to analyze the data. Regression analysis was used to test the relationship between the variables under study in relation to the objectives of the study. Analysis of variance (ANOVA) was used to confirm the findings of regression.

A total of 20 questionnaires were administered and the study managed to obtain 16 completed questionnaires representing 80% response rate. The questionnaires contained questions that addressed the objectives of the study. The objectives of the study were: to determine the procurement risk management practices used by mobile phone service providers in Kenya and to determine the relationship between procurement risk management practices and supply chain performance of mobile phone service providers in Kenya;

Table 4.1: Response Rate

Response rate	Frequency	Percentage
Completed	16	80
Incomplete	4	20
Total	20	100

Source: Author (2014)

4.2 Data Presentation

4.2.1 Data Validity

The researcher issued three questionnaires to three respondents in the mobile phone service providers so as to conduct a pilot study. Piloting of the research instrument was necessary for various reasons: It helped to clarify the wording and grammar of the instrument so as to avoid misinterpretations; to avoid research bias; detect ambiguous questions; and to pick out in advance any problems in the methods of research. This helped to make the data used in this analysis valid.

4.2.2 Data Reliability

To test the reliability of the Likert scale used in this study, reliability analysis was done using Cronbach's Alpha as the measure. Reliability co-efficient of $\alpha \geq 0.7$ was considered adequate. In this case, a reliability co-efficient of 0.852 was registered indicating a high level of internal consistency for the Likert scale used.

Table 4.2.2: Cronbach's Alpha

Reliability Statistics	
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items
0.852	0.880

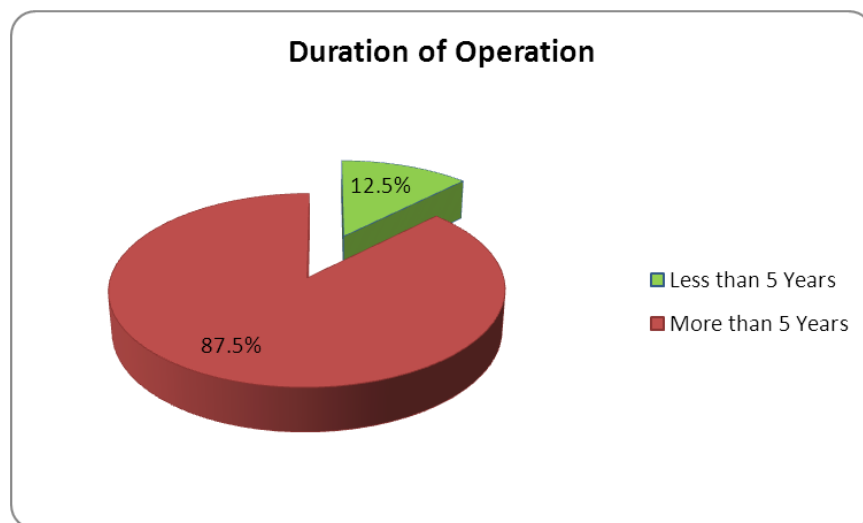
Source: SPSS Output (2014)

4.3 General Demographics

4.3.1 Duration of Operation

The study sought to know the duration the mobile telephony companies had been in operation. The study established that 87.5% of the respondents had been in operation for more than 5 years while 12.5% had less than five years of operation. This indicates that the mobile telephone service providers have been in operation long enough to understand the procurement risk issues sought by the study. The study findings are as shown in Figure 4.3.1;

Figure 4.3.1 Duration of Operation



Source: Research Data (2014).

4.3.2 Development of Procurement Risk Management Practices

The respondents were further asked to indicate when their firms developed their procurement risk management practices for the first times. The study established that 75% of respondents said that their firms developed their procurement risk management practices about five years ago while 25% said it's about ten years ago. This indicates that different mobile phone service providers adopted procurement risk management practices

in different periods as the organizations grew. The results of the study are as shown in Table 4.3.2;

Table 4.3.2: Development of Procurement Risk Management Practices

	Frequency	Percent
Five years ago	12	75.0
Ten years ago	4	25.0
Total	16	100.0

Source: Research Data (2014).

4.3.3 Job Position Held

The study further sought to know various job positions held by the respondents. The job positions held indicate that the responses were from those with hands-on experience in the company operations and were at a position to respond to the researcher's queries appropriately. In this study, Assistant Supply chain manager accounted for 35.5% followed by Supply chain officer and Supply chain manager each at 31.2%. This indicates that the researcher obtained data from reliable people by virtue of the job positions they held. The job positions held by respondents are as shown in the Table 4.3.3.

Table 4.3.3: Position Held

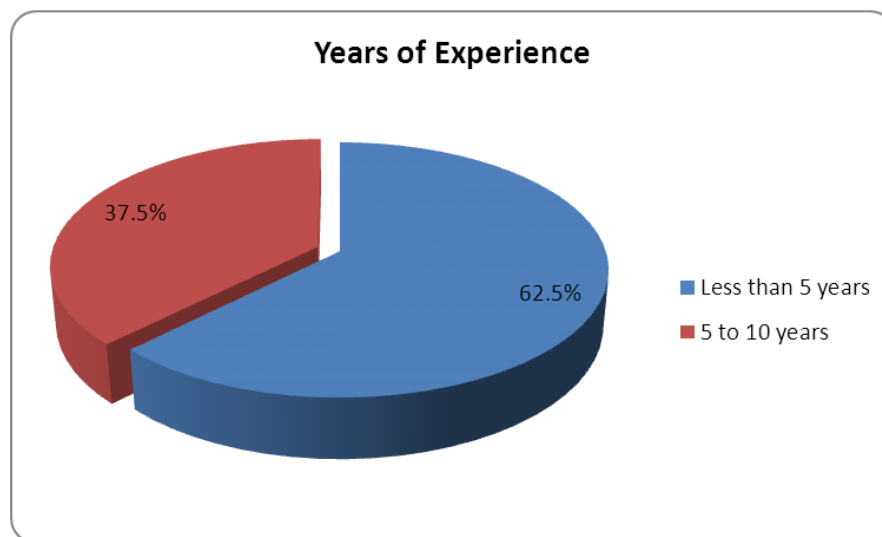
	Frequency	Percent
Supply chain manager	5	31.2
Assistant Supply chain manager	6	37.5
Supply chain officer	5	31.2
Total	16	100.0

Source: Research Data (2014).

4.3.4 Years of Experience

The respondents were further requested to indicate the duration for which they been working at their respective firms. The duration of service would enable the respondents to give information based on their job experience in the firm's operations. In this study, majority (62.5%) of the respondents had been at their respective firms for less than five years while 37.5% had been there for 5-10 years. This implies that the respondents had been working in their respective firms long enough to understand the procurement risk management practices issues sought by the study. The results on this question are presented in Figure 4.3.4.

Figure 4.3.4: Years of Experience



Source: Research Data (2014).

4.3.5 Gender of the Respondent

The researcher sought and obtained the gender details of respondents who participated in the research. Majority (68.8%) of the respondents were male while the female were

31.2%. This is an indication that the study observed gender balance in the administration of questionnaires. The findings are as shown in Table 4.3.5.

Table 4.3.5 Gender of the Respondent

	Frequency	Percent
Male	11	68.8
Female	5	31.2
Total	16	100.0

Source: Research Data (2014).

4.4 Implementation of Procurement Risk Management Practices

In this section, the study sought to know the extent to which the Mobile Phone Service Providers had been practicing Procurement Risk Management Practices. The extent was measured on a Likert scale of 1-5 where:

1= Very Large Extent, 2= Large Extent, 3= Moderate Extent, 4= Small Extent and 5= Very Small Extent.

The smaller the mean, the greater the extent of agreement while the greater the standard deviation, the greater the level of variation in the responses.

4.4.1 Procurement Strategy Practices

The study established that overall, Procurement Strategy Practices were used to a very large extent by the Mobile Telephone Service Providers as a way of managing procurement risk. This was evidenced by the overall mean of 1.6375. To a very large extent, the respondents agreed that effective sourcing has resulted to saving in revenue, transaction cost reduction and standardized procurement process with a mean of 1.3125 followed by the observation that the mobile phone services provider has a strategy that

ensures procurement attracts the strongest possible field of tenders for goods and services with a mean of 1.5625. The respondents' differed more on the point that the procurement plan supports delivery of the organizations vision as evidenced by the standard deviation of 0.80623. The results of the study are as shown in Table 4.4.1;

Table 4.4.1: Procurement Strategy Practices

	Mean	Stdev
Effective sourcing has resulted to saving in revenue, transaction cost reduction and standardized procurement process	1.3125	0.60208
The mobile phone services provider has a strategy that ensures procurement attracts the strongest possible field of tenders for goods and services	1.5625	0.62915
The procurement plan supports delivery of the organizations vision	1.6250	0.80623
Services are procured using a defined procurement plan with creative approaches to procurement	1.7500	0.77460
The mobile phone service provider has a strategy for managing supplier and price volatility	1.9375	0.77190
Overall Mean	1.6375	0.716792

Source: Research Data (2014).

4.4.2 Sourcing Category Management Practices

The study established that there was an overall large agree from the respondents in regard to Sourcing Category Management Practices. On whether the cost of buying goods and services is well managed, the respondents agreed to a very large extent as shown by the mean of 1.6875 followed by the observation that the range of products sold or purchased are broken down into discrete groups of similar related products with a mean of 1.8125 indicating they agreed to a very large extent. On whether supplier evaluation, supplier portfolio analysis, supplier audits and supplier process failure mode effects and analysis

are carried out regularly, the respondents agreed but only to a large extent as evidenced by the overall mean of 2.0. The latter also registered the greatest variation in the responses received as indicated by the standard deviation of 0.89443 while on whether the mobile phone service provider benefits from innovation by suppliers and has obtained increased overall value from the supplier base received the least variation in responses with a deviation of 0.77460. The results are as shown in Table 4.4.2 below.

Table 4.4.2: Sourcing Category Management Practices

	Mean	Stdev
The cost of buying goods and services is well managed	1.6875	0.94648
The range of products sold or purchased are broken down into discrete groups of similar related products (product categories)	1.8125	0.98107
The mobile phone service provider manages its suppliers and customers as strategic business units	1.9375	0.85391
The mobile phone service provider benefits from innovation by suppliers and has obtained increased overall value from the supplier base	1.9375	0.77190
Supplier evaluation, supplier portfolio analysis, supplier audits and supplier process failure mode effects and analysis are carried out regularly	2.0000	0.89443
Overall Mean	1.875	0.8895

Source: Research Data (2014).

4.4.3 Supplier Relationship Management Practices

In regard to whether the success of mobile phone service providers can be attributed to long term strategic partner relationships with key suppliers, the respondents agreed to a very large extent as indicated by the mean of 1.375. On whether , the organizations'

desired quality of goods and services has been achieved and maintained by suppliers, the respondents also agreed to a very large extent. The least agreed on statement was on whether the mobile phone service provider collaborates with suppliers to detect risks in the procurement process as indicated by the mean of 2.375. Overall, the level of agreement was to a very large extent as indicated by the overall mean of 1.75. The greatest standard deviation of 1.2042 was recorded on the statement that the mobile phone service provider collaborates with suppliers to detect risks in the procurement process indicating that it registered the greatest variation in responses as opposed to the statement that the organizations' desired quality of goods and services has been achieved and maintained by suppliers which recorded the least standard deviation of 0.51640. The study findings are as shown in Table 4.4.3;

Table 4.4.3: Supplier Relationship Management Practices

	Mean	Stdev
The success of the mobile phone service provider can be attributed to long term strategic partner relationships with key suppliers	1.3750	0.61914
The organizations desired quality of goods and services has been achieved and maintained by suppliers	1.5000	0.51640
The organization has uncovered and realized new value from collaborative relations with suppliers	1.5625	0.72744
The organization strategically plan for, and manages all interactions with third party organizations that supply goods and/or services	1.9375	0.99791
The mobile phone service provider collaborates with suppliers to detect risks in the procurement process	2.375	1.2042
Overall Mean	1.7500	0.8130

Source: Research Data (2014).

4.4.4 Workforce and Organization Practices

On Workforce and Organization Practices, the respondents agreed to a large extent that functions are well defined, there is clarity on who takes part in anticipation, monitoring and mitigation plans when an incident occurs and that customers are generally satisfied and there is a reduced level of customer complaints as shown by the mean of 2.0625 for both statements. The least agreed on statements were that the organization's procurement has a certainly led procurement risk management network that coordination across regions and that the organizations' procurement risk management team handles risk management as their sole responsibility within their departments which registered a mean of 2.6875 each. Overall, the level of agreement was to a large extent as depicted by the overall mean of 2.35. However, the responses were not necessarily clustered around the mean but were dispersed as indicated by the standard deviations. The results of the study are as shown in Table 4.4.4;

Table 4.4.4: Workforce and Organization Practices

	Mean	Stdev
Functions are well defined, there is clarity on who takes part in anticipation, monitoring and mitigation plans when an incident occurs	2.0625	0.92871
Customers are generally satisfied and there is a reduced level of customer complaints	2.0625	0.85391
The mobile phone service provider has a particular team of procurement master that are assigned the procurement risk management task	2.2500	1.34164
The organization's procurement has a certainly led procurement risk management network that coordination across regions	2.6875	1.19548
The organizations procurement risk management team handles risk management as their sole responsibility within the department	2.6875	1.49304
Overall Mean	2.35	1.1626

Source: Research Data (2014).

4.4.5 Multiple Sourcing Practice

In regard to Multiple Sourcing Practices, the statement that the mobile phone service providers can purchase an identical products from different vendors received the greatest agreement with a mean of 1.5625 followed by the statement that employees and customers are generally satisfied by the level of service and order delivery with a mean of 1.75 indicating that the level of agreement was to a very large extent. The least agreement was on the statement that there is generally little dependency on suppliers which recorded a mean of 2.5625 indicating agreement to a large extent. The overall mean registered was 1.925 indicating that the overall level of agreement was to a very large extent. However,

the responses were spread out as shown by the standard deviations registered. The study findings are as shown in Table 4.4.5;

Table 4.4.5: Multiple Sourcing Practice

	Mean	Stdev
The mobile phone service provider can purchase an identical product from different vendors	1.5625	0.81394
Employees and customers are generally satisfied by the level of service and order delivery	1.7500	0.77460
The organization has recorded very minimal disruptions in supply	1.8125	1.10868
The organization has a back-up source for emergency orders	1.9375	0.92871
There is generally little dependency on suppliers	2.5625	1.03078
Overall Mean	1.925	0.931342

Source: Research Data (2014).

4.4.6 The Practice of Regular Negotiation with Suppliers

The respondents were further prompted to indicate their level of agreement in regard to various Regular Negotiation with Suppliers statements. On whether the mobile phone service providers regularly bargain with suppliers whenever there is a new order to be fulfilled, the respondents agreed to a very large extent as shown by the mean of 1.25. On whether there exists a good relationship between the organization and its suppliers with the hope for continued future agreements, the respondents also agreed to a very large extent. However, on whether the mobile phone service provider has managed its costs and maintained profitability, the respondents only agreed to a large extent as shown by the mean of 2.0. Overall, the respondents agreed to a very large extent as indicated by the

overall mean of 1.675. However, the respondents opinions on the statements varied greatly as shown by the standard deviations recorded. The results of the study are as shown in Table 4.4.6;

Table 4.4.6: The Practice of Regular Negotiation with Suppliers

	Mean	Stdev
The mobile phone service provider regularly bargains with suppliers whenever there is a new order to be fulfilled	1.2500	0.57735
There exists a good relationship between the organization and its suppliers with the hope for continued future agreements	1.3750	0.50000
There is generally room for feedback regarding satisfaction or dissatisfaction on previous orders by both parties	1.8750	0.80623
Economic risks such as currency fluctuations and obsolescence are well managed.	1.8750	0.80623
The mobile phone service provider has managed its costs and maintained profitability	2.0000	1.15470
Overall Mean	1.675	0.768902

Source: Research Data (2014).

4.4.7 Risk Sharing Clauses (Back to Back Contracts Practice)

On risk sharing clauses, the statement that obligations of both the contractor and subcontractor are clearly spelt out in the contract was the most agreed on with a mean of 1.25 followed by the statement that both the contractor and the subcontractor bear responsibility in the event of any disruption which had a mean of 1.4375. The statements that the mobile phone service provider interprets risk sharing clauses in its contracts with the suppliers and that the contractor is fully protected against any risk of underperformance by the subcontractor were the least agreed on with means of 1.8125 and 2.5625 respectively. Overall, the agreement was to a very large extent as shown by

the mean of 1.7375. The contractor is fully protected against any risk of underperformance by the subcontractor was the statement that had the greatest deviation of 1.54785 while Obligations of both the contractor and subcontractor are clearly spelt out in the contract had the least. The study findings are outlined in Table 4.4.7;

Table 4.4.7: Risk Sharing Clauses (Back to Back Contracts Practice)

	Mean	Stdev
Obligations of both the contractor and subcontractor are clearly spelt out in the contract	1.2500	0.44721
Both the contractor and the subcontractor bear responsibility in the event of any disruption	1.4375	0.62915
Warrantees or guarantees are included to protect the contractors against risks due to delays	1.6250	0.88506
The mobile phone service provider interprets risk sharing clauses in its contracts with the suppliers	1.8125	1.16726
The contractor is fully protected against any risk of underperformance by the subcontractor	2.5625	1.54785
Overall Mean	1.7375	0.9353

Source: Research Data (2014).

4.4.8 Value Engineering Practice

To a very large extent, the respondents agreed that their organizations develop products that meet the different needs of the different customer segments with a mean of 1.6250. The organization regularly carries out a market analysis to understand the changing needs of their customers came second with a mean of 1.6875 while the statement that the changing needs of the customers are addressed during product development came third with a mean of 1.75. The overall level of agreement was to a very large extent as indicated by the overall mean of 1.7875. The greatest disparity in responses was recorded

on the statement that suppliers work closely with engineers to developing alternative bills of materials which had a standard deviation of 1.06262 while the statement that the mobile phone service provider conducts value analysis at the design engineering stage of its products registered the least with a deviation of 0.75000. The findings are as shown in Table 4.4.8;

Table 4.4.8: Value Engineering Practice

	Mean	Stdev
The organization develops products that meet the different needs of the different customer segments	1.6250	0.95743
The organization regularly carries out a market analysis to understand the changing needs of their customers	1.6875	0.79320
The changing needs of the customers are addressed during product development	1.7500	0.93095
The mobile phone service provider conducts value analysis at the design engineering stage of its products	1.8125	0.75000
Suppliers work closely with engineers to developing alternative bills of materials	2.0625	1.06262
Overall Mean	1.7875	0.89884

Source: Research Data (2014).

4.4.9 Insurance Practice

In regard to the insurance practice, the respondents agreed to all statements to a very large extent. The statement that the mobile phone service provider has insurance arrangements with an insurance company was the most agreed on statement with a mean of 1.25 followed by the statement that insurance premiums are paid regularly with a mean of 1.3125 and then the statement that the mobile phone service provider insures all goods in transit with a mean of 1.375. This section also registered the least standard deviations

with the statement that the organization engages in Just-in-time global procurement with a deviation of 0.80623 while the statement that the mobile phone service provider has insurance arrangements with an insurance company had the least deviation indicating that the responses were more clustered towards the mean. The study findings are as shown in Table 4.4.9;

Table 4.4.9: Insurance Practice

	Mean	Stdev
The mobile phone service provider has insurance arrangements with an insurance company	1.2500	0.57735
Insurance premiums are paid regularly	1.3125	0.60208
The mobile phone service provider insures all goods in transit	1.3750	0.71880
Insurance cover has been undertaken against unpredictable and unavoidable natural disruptions	1.4375	0.72744
The organization engages in Just-in-time global procurement	1.8750	0.80623
Overall Mean		

Source: Research Data (2014).

4.4.10 Supply Chain Financing Practice

In regard to Supply Chain Financing Practice, the study established that on whether working capital of both the supplier and the buyer is never affected where high cost capital supplies are involved, the respondents agreed to a great extent followed by the statement that loans are advances based on the credit worthiness of the mobile phone service provider and not the supplier with a mean of 2.625. On whether letters of credit are undertaken where necessary and on whether vendor financing is practiced where the suppliers have the capacity, the respondents agreed only to a moderate extent as shown by the overall mean of 3.5000 and 3.5625 respectively. High standard deviations were

also recorded indicating the responses were greatly spread away from the mean. Vendor financing is practiced where the suppliers has the capacity is the statement that recorded the greatest disparity while the statement that working capital of both the supplier and the buyer is never affected where high cost capital supplies are involved had the least disparity. The study findings are as shown in Table 4.4.10;

Table 4.4.10: Supply Chain Financing Practice

	Mean	Stdev
Working capital of both the supplier and the buyer is never affected where high cost capital supplies are involved	2.3750	0.95743
Loans are advances based on the credit worthiness of the mobile phone service provider and not the supplier	2.6250	1.08781
The mobile phone service provider's suppliers sell their invoices to the banks once issued by the buyer	3.2500	1.06458
Letters of credit are undertaken where necessary	3.5000	1.46059
Vendor financing is practiced where the suppliers has the capacity	3.5625	1.68521
Overall Mean		

Source: Research Data (2014).

4.3.11 Procurement Performance

In this section, the study sought to know how the respondents rated the procurement performance of the Mobile Phone Service Providers they worked for. Different parameters were used to measure procurement performance. The extent was measured on a Likert scale of 1-5 where: 1= Very Large Extent, 2= Large Extent, 3= Moderate Extent, 4= Small Extent and 5= Very Small Extent. The smaller the mean, the greater the extent of procurement performance. Over the five year period, full delivery on requests and proposals was the most highly rated procurement performance parameter with a mean of

1.3077 indicating it was rated to be performing well to a very large extent. Other parameters rated to a very large extent are: Accuracy of orders delivered, Order cycle time, Quality of orders, Profit maximization, Stock available, Operational efficiency, Supplier response time, Revenue maximization, Customer satisfaction and Stock turnover. Their means are as shown in Table 4.3.11. The least rated aspect was that Employee motivation/satisfaction which recorded a mean 2.5. The standard deviations indicate that over the five year period, the level of procurement had been fluctuating. Overall, procurement was rated to be performing well to a very large extent as indicated by the overall mean of 4.4.11;

Table 4.4.11: Procurement Performance

	Mean	Std. Deviation
Full delivery on requests and proposals	1.3077	0.48038
Accuracy of orders delivered	1.3846	0.65044
Order cycle time	1.4167	0.66856
Quality of orders	1.4615	0.66023
Profit maximization	1.5455	1.21356
Stock available	1.5833	.90034
Operational efficiency	1.6154	1.12090
Supplier response time	1.6154	0.76795
Revenue maximization	1.6364	0.92442
Customer satisfaction	1.7692	0.72501
Stock turnover	1.7692	0.92681
Time to market	2.0833	0.79296
Cost minimization	2.0909	1.70027
Market share maximization	2.4615	1.56074
Employee motivation/satisfaction	2.5000	1.31426
Overall Mean	1.7494	0.9605

Source: Research Data (2014).

4.5 Relationship between Procurement Risk Management Practices and Supply Chain Performance

The study sought to establish the relationship between procurement risk management practices and supply chain performance. The researcher conducted a regression analysis to explain this relationship. The scores to be regressed were computed through factor analysis and then saved as variables. Regression analysis was conducted using Statistical Package for Social Sciences. The results obtained are presented and discussed below;

4.5.1 Model Summary

The research findings indicated that there was an overall strong and positive relationship between the variables. The findings are as shown in the tables 4.5.1 below;

Table 4.5.1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.826 ^a	0.683	0.646	0.94551673
a. Predictors: (Constant), Procurement strategy practice, Sourcing and category management practice, Supplier relationship management practice, Multiple sourcing practice, Workforce and organization practice, Regular negotiation with suppliers, Risk sharing clauses, Value engineering practice, Insurance practice, Supply chain financing practice.				

Source: SPSS Output (2014).

In a model summary, the “R” value is used to indicate the strength and direction of the relationship between the variables. The closer the value gets to 1 or -1, the stronger the relationship. A positive or negative sign indicates the direction of the relationship. In this

case the $R = 0.576$. This means there was an overall strong and positive relationship between the variables. The adjusted R-Square in the study was found to be 0.646. This value indicates that the independent variables can explain 64.6% of the variance in procurement performance. It is clear that they contribute to a fairly significant extent to the level of performance that is achieved in the procurement performance of organizations. It therefore suffices to conclude that procurement risk management practices is fairly essential in enhancing the procurement performance of an organization given that there is an unexplained variance of 35.4%.

4.5.2 Regression Coefficients

Unstandardized Coefficients of determination under the B column are used to substitute the unknown beta values. The beta values indicate the direction of the relationship. A positive sign indicates a positive relationship while a negative sign indicates a negative relationship. The significant values (p-value) under sig. column indicate the statistical significance of the relationship. A p-value of less than 0.05 is recommended as it signifies a high degree of confidence. A value above 0.05 indicates that the relationship maybe as a result of coincidence.

Table 4.5.2: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.857	0.116		10.164	0.000
Procurement strategy practice	0.279	0.152	0.273	2.835	0.047
Sourcing and category management practice	0.194	0.151	0.164	3.087	0.018
Supplier relationship management practice	0.267	0.151	0.247	2.049	0.120
Multiple sourcing practice	0.331	0.223	0.321	2.250	0.0876
Workforce and organization practice	0.367	0.366	0.353	2.756	0.051
Regular negotiation with suppliers	0.305	0.296	0.278	3.865	0.001
Risk sharing clauses	0.254	0.546	0.241	5.658	0.005
Value engineering practice	0.289	0.468	0.232	3.230	0.032
Insurance practice	0.405	0.233	0.395	2.960	0.042
Supply chain financing practice	0.353	0.203	0.342	3.112	0.036
a. Dependent Variable: Procurement Performance					

Source: SPSS Output (2014).

In this case, seven variables were found to be statistically significant as their the p-values were less than above 0.05. Insurance practice was found to have the greatest impact as indicated by the beta value of 0.05. All the predictor variables were found to have a positive effect on procurement performance.

The equation for the regression model is expressed as:

$$Y = \beta_0 + \beta_1 \chi_1 + \beta_2 \chi_2 + \beta_3 \chi_3 + \beta_4 \chi_4 + \beta_5 \chi_5 + \beta_6 \chi_6 + \beta_7 \chi_7 + \beta_8 \chi_8 + \beta_9 \chi_9 + \beta_{10} \chi_{10} + \epsilon$$

$$Y = 0.857 + 0.279 \chi_1 + 0.194 \chi_2 + 0.267 \chi_3 + 0.331 \chi_4 + 0.367 \chi_5 + 0.305 \chi_6 + 0.254 \chi_7 + 0.289 \chi_8 + 0.405 \chi_9 + 0.353 \chi_{10} + \epsilon$$

Where;

Y = Supply chain performance

x_1 = Procurement strategy practice

x_2 = Sourcing and category management practice

x_3 = Supplier relationship management practice

x_4 = Multiple sourcing practice

x_5 = Workforce and organization practice

x_6 = Regular negotiation with suppliers

x_7 = Risk sharing clauses

x_8 = Value engineering practice

x_9 = Insurance practice

x_{10} = Supply chain financing practice

β_0 = Co-efficient of the model

$\beta_1 - \beta_{10}$ = Slope (Beta co-efficient) of independent variables ($x_1, x_2, x_3 \dots x_n$)

ϵ = Error term (Assumed to be zero)

The results of the regression equation show that if all the independent variables were rated zero, Procurement Performance is predicted to be 0.857. However, all the predictors had a positive relationship with the dependent variable.

4.5.3 Analysis of Variance (ANOVA)

Analysis of variance was also done to establish the significance of the regression model.

Table 4.5.3 Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.572	4	2.643	2.956	0.027 ^a
	Residual	55.428	62	0.894		
	Total	66.000	66			
a. Predictors: (Constant), Procurement strategy practice, Sourcing and category management practice, Supplier relationship management practice, Multiple sourcing practice, Workforce and organization practice, Regular negotiation with suppliers, Risk sharing clauses, Value engineering practice, Insurance practice, Supply chain financing practice. Dependent variable: Supply Chain performance						
b. Dependent variable: Supply Chain performance						

Source: SPSS Output (2014).

At 95% confidence level, a significant value (p-value) of 0.027 was registered. This shows that the regression model has a probability of less than 0.027 of giving wrong prediction. Hence, the regression model used above is a suitable prediction model for explaining how procurement risk management practices influences procurement performance.

4.6 Discussion of Findings

Findings obtained from this study have close correlation with what has been discussed in the literature review and particularly the theoretical framework. It has been noted that the four mobile phone service providers are finding it essential to develop procurement risk management practices in order to enhance their supply chain performance. Today's turbulent supply markets and volatile, pan-global business environment has forced organizations to develop strategies in order to attain positive Supply Chain performance. Accenture (2010) in his study confirms that developing a formal, structured, risk management capability for procurement is an outstanding way to do just that. Russill, (2008) also indicated that procurement risk management should be on top of management's agenda since there is greater awareness that risks can lurk in areas where traditionally they have not been sought. The study also indicated that procurement risk management practices could account for or explain 64.6% of the dependent variable, supply chain performance. The remaining 35.4% can be explained by other variables. Smith (2012) in his study established that outsourcing plays a significant role in uplifting the supply chain performance of the mobile phone companies in Kenya. Osumo (2012) also established that lead time variability has an impact on the performance of supply chains both in the public and private sector. Gichuhi (2011) in her study also indicated that business integration has assisted the commercial banks in Kenya to enhance the performance of their supply chains. Despite the challenges faced in the implementation of procurement risk management practices, the mobile phone service providers have embraced it as a strategic tool for gaining a competitive advantage, customer satisfaction and therefore profit maximization to their shareholders.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of the study, discussions and conclusions. The researchers then present the major limitations of the study and the recommendations for both the research and for the policy and practice.

5.2 Summary of Findings

The study sought to establish the relationship between procurement risk management practices and supply chain performance. The variables affecting supply chain performance were: Procurement strategy practice, Sourcing and category management practice, Supplier relationship management practice, Multiple sourcing practice, Workforce and organization practice, Regular negotiation with suppliers, Risk sharing clauses, Value engineering practice, Insurance practice, Supply chain financing practice. The study revealed that all the variables were used by the Mobile Telephone Service Providers to a very large extent.

The research findings further indicated that there was a positive relationship ($R = 0.576$) between procurement risk management practices and supply chain performance. The result of the study also indicated that the value of adjusted R-squared was 0.646. This means that independent variables investigated in the study (procurement risk management practices) could account for or explain 64.6% of the dependent variable, supply chain performance. The remaining 35.4% can be explained by other variables

which are not under study. The degree of the vulnerability of a supply chain is determined to a large extent by the degree of complexity of the network (Nieger et al., 2008). In recent times the complexity has increased many-fold due to firms' focus on their core competence and increased dependence on outsourcing. Accenture (2010) indicates that there is a need for a structured risk management capability within the procurement organization since procurement has become a major focal point for companies' risk management concerns. He identified several procurement risk management practices that impact on the performance of the organization. Therefore, the study findings support the existing literature.

5.3 Conclusions

The first objective of the study was to determine the procurement risk management practices used by mobile phone service providers in Kenya. The study concludes that the main procurement risk management practices used by Mobile Telephone Service Providers are: Risk sharing where obligations of both the contractor and subcontractors are clearly spelt out in the contract clauses, developing products that meet different needs of the different customer segments to avoid the risk of financial loss, having insurance arrangements with an insurance company where insurance premiums are paid regularly, insuring all goods in transit and undertaking insurance cover against unpredictable and unavoidable natural disruptions.

The second objective was to determine the relationship between procurement risk management practices and supply chain performance of mobile phone service providers

in Kenya. The study concluded that there is a positive relationship between procurement risk management practices and supply 64.6% of the supply chain performance.

5.4 Recommendations

This study recommends the following measures to ensure continued improvement in procurement performance: The managements of the mobile phone service providers should keep on doing regular risk assessments in their supply chains as a way of averting adverse effects of uncertainty. The firms can also benchmark themselves against the best players in the world as a way of improving their supply chain risk management practices.

The study further recommends that all mobile phone service providers in Kenya should endeavor to fully understand the procurement risk management practices in order to drive them to undisputed performance of their supply chains.

5.5 Limitations of the Study

The study mainly depended on the data provided by the respondents. This means that the accuracy of the data provided depended on the information provided. The respondents handled the problem by making calls to clarifications.

Company information is proprietary and confidential. Most of the respondents approached were reluctant in giving some information fearing that the information sought would be used to intimidate them or create a negative image of the firms they work for. The researcher handled the problem carrying an introduction letter from the University so as to assure them that the information will be treated as confidential and will be used purely for academic purposes.

The respondents busy working schedules which delayed the completion of the data collection process was another major challenge. The researchers had to exercise utmost patience and make extra effort in reminding respondents and making constant follow-ups so as to acquire sufficient data from respondents.

5.6 Suggestions for Further Research

The study was concerned with establishing the relationship between procurement risk management practices and supply chain performance of mobile phone service providers. Around 64.6 % of the supply chain performance can be explained by procurement risk management practices. However, the remaining 35.4% can only be explained other factors not under consideration in this study. Therefore, there is need to establish the other factors.

Further research on the same study can be done in other countries to establish whether implementing procurement risk management practices is able to yield the same effect on supply chain performance of mobile phone service providers.

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APPENDIX I: RESEARCH QUESTIONNAIRE

Instructions: Fill in the blank spaces and tick where appropriate.

This questionnaire has been designed for the sole purpose of collecting data and will be treated with a very high degree of confidentiality and it is meant for academic purpose only.

Section A: General Information

1. Company Name:
.....
2. Duration mobile service provider has been in operation
☐ Less than 5 years ☐ More than 5 years
3. When did you first develop procurement risk management practices
☐ Five years ago ☐ Ten years ago ☐ Fifteen years ago
4. What is your position in this organization
 - a) Supply chain manager
 - b) Assistant supply chain manager
 - c) Supply chain officer
 - d) Other (specify).....
5. How long have you been in this position
 - a) Less than 5 years
 - b) 5 to 10 years
 - c) 10 to 15 years
 - d) Above 15 years
6. Gender
 - a) Male
 - b) Female

Section B: Extent of implementation of Procurement Risk management Practices among Mobile Phone Service Providers in Kenya

Please indicate the extent to which you agree with the following statements on the extent to which your organization has been practicing the following procurement risk management practices. The scale below will be applicable:

1= To a very large extent 2= Large extent 3= moderate extent 4= small extent 5=very small extent.

No	Procurement strategy practice	1	2	3	4	5
1	The mobile phone service provider has a strategy that ensures procurement attracts the strongest possible field of tenders for goods and services					
2	Services are procured using a defined procurement plan with creative approaches to procurement					
3	Effective sourcing has resulted to saving in revenue, transaction cost reduction and standardized procurement process					
4	The mobile phone service provider has a strategy for managing supplier and price volatility risks					
5	The procurement plan supports delivery of the organization's vision					
	Sourcing and Category Management practice	1	2	3	4	5
1	The mobile phone service provider manages its suppliers and customers as strategic business units					
2	The range of products sold or purchased are broken down into discrete groups of similar related products (product categories)					
3	Supplier evaluation, supplier portfolio analysis, supplier audits and Supplier process failure mode effects and analysis are carried out regularly					
4	The cost of buying goods and services is well managed					
5	The mobile phone service provider benefits from innovation by suppliers and has obtained increased overall value from the supplier base					

	Supplier Relationship Management practice	1	2	3	4	5
1	The success of the mobile phone service provider can be attributed to long term strategic partner relationships with key suppliers					
2	The mobile phone service provider collaborates with suppliers to detect risks in the procurement process					
3	The organization's desired quality of goods and services has been achieved and maintained by suppliers					
4	The organization has uncovered and realized new value from collaborative relations with suppliers					
5	The organization strategically plan for, and manages all interactions with third party organizations that supply goods and/or services					
	Work force and organization practice	1	2	3	4	5
1	The mobile phone service provider has a particular team of procurement masters that are assigned the procurement risk management task					
2	The organization's procurement risk management team handles risk management as their sole responsibility within the department					
3	The organization's procurement has a centrally led procurement risk management network that coordination across regions					
4	Functions are well defined, there is clarity on who takes part in anticipation, monitoring and mitigation plans when an incident occurs					
5	Customers are generally satisfied and there is a reduced level of customer complaints					
	Multiple Sourcing Practice	1	2	3	4	5
1	The mobile phone service provider can purchase an identical product from different vendors					
2	The organization has recorded very minimal disruptions in supply					
3	There is generally little dependency on suppliers					
4	Employees and customers are generally satisfied by the level of service and order delivery					
5	The organization has a back-up source for emergency orders					

	The practice of Regular Negotiation with Suppliers	1	2	3	4	5
1	The mobile phone service provider regularly bargains with suppliers whenever there is a new order to be fulfilled					
2	There exists a good relationship between the organization and its suppliers with the hope for continued future agreements					
3	There is generally room for feedback regarding satisfaction or dissatisfaction on previous orders by both parties					
4	Economic risks such as currency fluctuation and obsolescence are well managed.					
5	The mobile phone service provider has managed its costs and maintained profitability					
	Risk sharing clauses/back to back contracts practice	1	2	3	4	5
1	The mobile phone service provider integrates risk sharing clauses in its contracts with the suppliers					
2	Warranties or guarantees are included to protect the contractor against risks due to delays					
3	Both the Contractor and subcontractor bear responsibility in the event of any disruption					
4	Obligations of both the contractor and subcontractor are clearly spelt out in the contract					
5	The contractor is fully protected against any risk of underperformance by the subcontractor					
	Value Engineering Practice	1	2	3	4	5
1	The mobile phone service provider conducts value analysis at the design engineering stage of its products					
2	Suppliers work closely with engineers to developing alternative bills of materials					
3	The changing needs of the customers are addressed during product development					
4	The organization develops products that meet the different needs of the					

	different customer segments					
5	The organization regularly carries out a market analysis to understand the changing needs of their customers					
	Insurance Practice	1	2	3	4	5
1	The mobile phone service provider has insurance arrangements with an insurance company					
2	The organization engages in Just-in-time global procurement					
3	The mobile phone service provider insures all goods in transit					
4	Insurance premiums are paid regularly					
5	Insurance cover has been undertaken against unpredictable and unavoidable natural disruptions					
	Supply Chain financing practice	1	2	3	4	5
1	The mobile phone service provider's suppliers sell their invoices to the banks once issued by the buyer					
2	Letters of credit are undertaken where necessary					
3	Loans are advanced based on the credit worthiness of the mobile phone service provider and not the supplier					
4	Working capital of both the supplier and buyer is never affected where high cost capital supplies are involved					
5	Vendor financing is practiced where the supplier has the capacity					

12. Any other? Please state

.....

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.....

.....

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Section C: Supply Chain Performance Measurement

Please indicate the scale that appropriately shows how you rate the performance of your supply chain for the past five years with regards to the parameters listed.

Use the scale of: 1= To a very large extent 2= Large extent 3= moderate extent 4= small extent 5=very small extent

No	SUPPLY CHAIN PERFORMANCE PARAMETERS	YEAR				
		2013	2012	2011	2010	2009
1	Profit maximization					
2	Revenue maximization					
3	Cost minimization					
4	Market share maximization					
5	Customer satisfaction					
6	Accuracy of orders delivered					
7	Full delivery on requests and proposals					
8	Supplier response time					
9	Quality of orders					
10	Employee motivation/satisfaction					
11	Time to market					
12	Stock availability					
13	Stock turnover					
14	Operational efficiency					
15	Order cycle times					

12. Any other? Please indicate.

.....

.....

.....

Thank you for participating

Appendix II: Mobile Phone Service Providers in Kenya

MOBILE PHONE SERVICE PROVIDERS IN KENYA	
1	Safaricom Kenya Ltd.
2	Airtel Networks Kenya Ltd.
3	Telkom Kenya Ltd.
3	Essar Telecom Kenya

Source: Communications Authority of Kenya (2014) www.ca.go.ke 24.07.14