

**SUPPLY CHAIN MANAGEMENT PRACTICES AND  
PERFORMANCE: THE CASE OF SAFARICOM LIMITED**

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**DECLARATION**

This research project is my original work and has not been submitted for a degree at any other University.

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## DEDICATION

*God, to you be all the glory,  
My wife Juliet and daughter Sifa,  
the reasons I was able to complete this paper, the source of all my inspiration.  
My Father, my mother, my brother and two sisters,  
for the sacrifices we made together, for all the ladders we have climbed together.*

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## **List of Acronyms**

<b>CCK</b>	– Communications Commission of Kenya
<b>CDMA</b>	– Code Division Multiple Access
<b>DCM</b>	– Demand Chain Management
<b>DHL</b>	– Document Handling Limited
<b>EDGE</b>	– Enhanced Data For GSM Evolution
<b>EMS</b>	– Electronic Manufacturing Service
<b>GPRS</b>	– General Packet Radio Service
<b>GSM</b>	– Global System For Mobile
<b>MC</b>	– Mass Customization
<b>OEM</b>	– Original Equipment Manufacturers
<b>SCD</b>	– Supply Chain Design
<b>SCM</b>	– Supply Chain Management
<b>SLA</b>	– Service Level Agreements

## ABSTRACT

The purpose of the study was to find the impact of Safaricom's supply chain management practices on the company's performance in the Kenya telecommunication industry. The data collected was analyzed by content analysis. The researcher interviewed supply chain partners that form part of Safaricom's supply chain. A total of 74 questionnaires were distributed of which sixty responses were completed and returned giving a response rate of 81.1%.

The literature reviewed the links between supply chain management and operational performance in the wireless telecommunication industry. Supply chain management needs to address information management, trade offs, cash flows, inventory, distribution network configuration and distribution strategies to be able to establish a link with operational performance. Critical activities in a supply chain management function and objectives of a supply chain function have been highlighted to guide the researcher to look for these activities while gathering information for the study. The literature also reviewed the issue of how to measure the performance of a supply chain management function. Emerging practices in supply chain management in selected countries is presented.

The findings of the study were that it was observed that there exists very strong supply chain management practices in Safaricom and there was evidence of superior operational performance within the supply chain. The performance dimension of flexibility, service, cost, quality as well as innovation are well represented in the supply chain. The performance dimensions contribute immensely towards a good supply chain management practice in the wireless telecommunication industry and specifically within Safaricom Limited and its partners.

While the findings give the company a good standing in terms of superior operational performance, it should be noted that many supply chain partners suggested that more needs to be done to performance manage the chain for sustainable operational performance. It was also observed that while there is seamless organization early in the

supply chain i.e. between Equipment suppliers, DHL and Safaricom, there is relatively lesser, although still impressive, seamless organization down the supply chain and especially between managing the large number of Safaricom authorized dealers and Safaricom limited.

## CHAPTER ONE; INTRODUCTION

### 1.1 Background

#### 1.1.1. Supply Chain Management

Supply Chain Management according to Cox et al (1995), is the function within and outside a company that enables the value chain to make products and provide services to the customer. It is the network of entities through which material flows. Those entities may include suppliers, carriers, manufacturing sites, distribution centers, retailers, and customers Lummus and Alber(1997). Supply Chain Management coordinates and integrates all these activities into a seamless process.

De Kluyver and Pearce (2006) say, the ultimate goal of strategy is “long-term, sustainable superior performance.” Such superior performance depends on the ability of an organization to become a fully integrated partner in a supply chain (Cooper et al., 1997), this requires that organizations adopt a supply chain strategy that focuses on how both internal and external business processes are integrated and coordinated throughout the supply chain to better serve ultimate customers and consumers while enhancing the performance of the individual supply chain members (Cohen and Roussel, 2005). Examples of business processes that must be integrated include manufacturing, purchasing, selling, logistics, and the delivery of real-time, seamless information to all supply chain partners.

Managing at the level of a supply chain requires a new focus and new ways of thinking as pointed out by Lambert et al (1998). Managers must learn to communicate, coordinate, and cooperate with supply chain partners . Stank et al (2005) describe supply chain management as a “strategic level concept.”

Ho et al (2002) conceptualize Supply Chain Management (SCM) as having three core elements: value creation, integration of key business processes and collaboration. Based on this conceptualization, they define SCM as “the philosophy of management that involves the management and integration of a set of selected key business processes from end user through original suppliers that provides products, services, and information that

add value for customers and other stakeholders through the collaborative efforts of supply chain members.”

### **1.1.2 Safaricom Limited**

Safaricom is East Africa’s leading company in terms of profitability. Safaricom provides converged communication solutions, operating on a single business driver that has a peerless understanding of voice, video and data requirements. The company is a “one stop shop” for integrated and converged data and voice communication solutions. Safaricom has a countrywide network and provides broadband high-speed data to its customers through its 3G network, Wimax and fiber in Kenya.

Safaricom has strengthened its leadership in the mobile market over the past five years, increasing its market share from 57% in 2002 to 80% as of December, 2008. However, it is expected that new entrants (Telkom Kenya and Econet, in 2008) will erode part of this market share in future years. The Company faces competition from other operators in the telecommunications sector. Safaricom was set up in 1997 and became a joint venture vehicle between Telkom Kenya Limited and Vodafone Kenya Limited (a subsidiary of Vodafone Group Plc) in 2000. Safaricom offers mobile voice services using GSM-900 and GSM-1800 technologies. It launched General Packet Radio Service (GPRS) in July, 2004, and Enhanced Data Rates for GSM Evolution (EDGE) services in June, 2006. In November, 2006, Safaricom ran a 3G technology trial which was launched commercially in April, 2008 after being formally granted Kenya’s first license to operate a 3G network in October of 2007 for \$25 million. The 3G network greatly improved operational efficiency within Safaricom’s supply chain.

### **1.1.3 Link between Supply Chain Management and Performance**

The business performance of a company is defined by business outcomes supported by truncation metrics from SCM events or actions such as outsourcing. This paper will focus on the operational performance within the Safaricom business. Operational performance will focus not only on the successful integration of internal business processes and

strategic alignment of internal functions within Safaricom, but also through the integration and alignment of inter-company processes in the telecommunications industry.

SCM requires a change from managing individual functions to integrating activities into key supply chain processes. Shared information between supply chain partners can only be fully leveraged through process integration. Process integration is a term used in chemical engineering which means a holistic approach to process design which considers the interactions between different unit operations from the outset, rather than optimizing them separately. Smith (2005) calls this *integrated process design* or *process synthesis*. . An important first step is often *product design* according to Cussler and Moggridge (2003) which develops the specification for the product to fulfill its required purpose. Process integration links the different components within and outside the organization that links the supply chain to the performance of that organization.

Supply chain business process integration involves collaborative work between buyers and suppliers, joint product development, common systems and shared information. According to Lambert and Cooper (2000), operating an integrated supply chain requires continuous information flow with the end result of the information flow being measuring and reacting to performance. However, in many companies, management has reached the conclusion that optimizing the product flows cannot be accomplished without implementing a process approach to the business. The key supply chain processes stated by Lambert (2004) are: Customer relationship management, Customer service management, Demand management, Order fulfillment, Manufacturing flow management, Supplier relationship management, Product development and commercialization and returns management

Experts found a strong relationship from the largest arcs of supplier and customer integration to market share and profitability and overall business performance. By taking advantage of supplier capabilities and emphasizing a long-term supply chain perspective in customer relationships, SCM can be correlated with a firm's performance.

A.T. Kearney Consultants (1985) noted that firms engaging in comprehensive performance measurement realized improvements in overall productivity. The internal

measures generally collected and analyzed by the firms include: Cost, Customer Service, Productivity measures, Asset measurement and Quality. External performance measurement is examined through customer perception measures and benchmarking.

#### **1.1.4 Supply Chain Management In Wireless Technology Companies**

The field of supply chain management (SCM) has been often criticized for its lack of external validity by academia and practitioners Otto and Kotzab (1999). In most of the cases, SCM dealt was used in the clothing industry, automobile industry or the fast-moving goods industry. Recently Spens and Bask (2002) applied presented an application of Cooper et al.'s (1997) SCM-framework for blood transfusion services in Finland and Reyes et al. (2000) presented their notions on SCM in the global telecommunication industry.

The global market for wireless telecommunication technologies is immense: nearly one billion people are using wireless technology everyday. The wireless service providers have diversified their products from mobile phones into internet services and money transfer services. The industry has been growing by 50 to 60 percent a year and the mobile phone producers produce ten times more phones than a few years ago (McCartney, 2001). The growth in the wireless telecommunication industry has in a few years accelerated due to constant technological development meaning that their supply chains keep on being redefined.

Wireless telecommunication services and products using the Global System for Mobile (GSM) -an international standard for mobile phones platforms- has undergone a huge change from being engineering products to become one of the most popular consumer electronics products and services. Although an important industry, there are not many contributions on wireless telecommunications product and services SCM, Catalan (2002). This is certainly an interesting fact, because the industry is facing a lot of supply chain-related problems. Catalan (2002) identified GSM actors with huge inventory problems and showed that demand changes came as such a surprise for the actors, evidence of persisting inefficiency in the supply chain.



The Kenyan scenario concurs with Catalan (2002) observations. The Kenyan mobile market currently has four major telecommunications operators: Safaricom, which was awarded a GSM license in 1999, Zain (formerly Celtel), which launched GSM services in 2000, Telkom Kenya, the fixed line operator that has already commenced a wireless Code Division Multiple Access (CDMA) network. Telkom Kenya was recently awarded a mobile license. The Kenyan regulator issued a fourth GSM license to Econet Wireless Kenya in December, 2003. Furthermore, the Kenyan Government intends to award additional telecommunications licenses. The GSM telecommunication market has grown rapidly over the past few years, with the number of subscribers growing from 2.8 million in September, 2004 to 18 million in December, 2008. Total subscriber penetration in Kenya was expected to reach 32% by December, 2008. There are very few studies on supply chain management of wireless technology firms in Kenya. Studies conducted on the successful adoption of the Mpesa money transfer in Kenya have been replicated in other countries.

These studies are just but a component of what wireless service providers manage in their supply chains. Often we have seen service interruptions by Safaricom indicating that challenges do exist in the companies supply chain and especially in their network coverage. One of the mitigating actions by the company was the adoption of the ultra modern 3G network from Huawei Technologies Ltd of China.

### **1.1.5 Safaricom Limited Supply Chain**

Safaricom operates a mobile telecommunications network in Kenya and is currently the country's leading mobile operator, with an estimated market share of 80% at the end of December, 2008. The Company has the broadest supply chain network in Kenya and beyond the borders. The Company's supply chain is characterized by experienced shareholders from the Vodafone group, attractive tariffs, a nationwide network of dealers and customer service, a modern network and high caliber management. Safaricom's supply chain can be described as comprising of the following players.

Vodafone limited- Safaricom has benefited from the extensive experience of Vodafone, the world's largest mobile telecommunications company. Vodafone has extensive

international and operational experience in 25 countries, including a number of emerging markets.

**Direct Channels** - Safaricom operates 22 of its own retail stores located within high traffic areas all over the country including major international airports. Mobile handsets, connection packages, scratch cards, modems, routers and accessories are available for sale. The centers also service Safaricom's postpaid customers.

**Indirect Channels** -The majority of Safaricom sales are registered through its extensive, wide-reaching and cost-effective dealer network. Currently, the dealer network comprises over 400 independent dealers that are committed to distribute only Safaricom products (except for handsets) through approximately 1,200 Safaricom-branded retail outlets.

**Dealers and sub-dealers** distribute Safaricom products and services to a retail network of over 100,000 small outlets, or kiosks. These small retail outlets are accessibly-located across the country.

**MPesa Agents** - Agents contracted to provide MPesa services have mainly been agents providing mobile services. Accordingly, the scope for MPesa subscriber expansion is as wide as the area presently covered by existing agents, and all areas covered by the mobile service network. The MPesa agent network grown to over 960 outlets, including Safaricom dealer outlets, Kenya Post Office Savings Bank branches, courier companies, supermarkets, fuel retailers and other shops..

**Document Handling Ltd (DHIL)** - Safaricom contracted DHL Worldwide Express Limited to effectively distribute its products and services countrywide safely and securely to the dealer network. This strategy assigns all aspects of shipping, tracking, and distributing handsets, connection packs and scratch cards to DHL..

**Customer Care Center Service** -The Company services and supports its subscribers through the Safaricom Care Centre, a customer call centre located in Nairobi staffed with customer care representatives.

**Billing Systems** -Safaricom utilizes a Portal (Oracle) billing system for postpaid subscribers, and a Nokia-Siemens prepaid billing system. All systems are fully integrated with network and accounting systems.

**Network** -The Company's network operates on both the 900 MHz and 1800 MHz bands, As of September, 2007, the network consisted of over 1,300 base stations approximately one-third of which were located in Nairobi as compared to a total of approximately 500 in September, 2005.

**Equipment Suppliers.** - New customer service requirements are what prompted Safaricom to invest in a new network management system in 2004. In this context, the mobile communication group at Siemens (Siemens mobile) built a complete network operations centre. Siemens installed a Performance Management System and linking the new network systems to both a workflow and Service Level Agreement (SLA) management system. China's largest network and telecommunications equipment supplier, Huawei Technologies, in July 2008 signed a multi-million dollar shilling contract with Safaricom to provide 3G equipment. In Germany and other leading economies where Huawei has launched its unified 3G technology, the cost of telecommunications has reduced in the long-term.

## **1.2 Statement of the Problem**

Few studies linking supply chain management and the telecommunication sector exist in Kenya. Nyamwange (2001) noted that most studies on operations management, of which SCM falls, is available in the Europe and America. Ooko (2003) discussed the link between performance and incentive pay in the mobile phone industry in Kenya. Odhiambo (2003) focused on determinants of customer satisfaction for mobile phone subscribers. Koskei (2007) discussed the factors influencing consumer adoption of mobile phones in Nairobi. These studies focus on financial performance in the telecommunication industry making an inherent assumption that successful operational performance already exists in the industry. Studies also tend to focus mainly on the variables surrounding the use of the mobile phone gadget, and specifically, voice communication, yet the entire supply chain of an existing GSM service provider has

multiple product offerings other than mobile phone voice communication, The studies fail to analyze those functions within and outside a company that enable the value chain to make products and provide services to the customer Cox et al. (1995).

The problem under consideration in this study was that Safaricom casts a perception that it operates a very efficient SCM practice judging from its financial performance, market share and collaborations with world class players like DHL, Siemens and Huawei technologies, but is this perception a reality on examining the company's operational performance closely. This brings into focus the need to examine the relationship between supply chain management practices and the company's operational performance.

### **1.3 Objectives Of The Study**

1. To determine the extent to which supply chain management practices pursued by Safaricom impact on its operational performance.
2. To establish challenges faced by the company while implementing supply chain management strategies.

### **1.4 Importance Of The Study**

The findings of the study are expected to be of particular importance to wireless telecommunication companies in Kenya. The study will provide them with valuable information on how to manage their supply chains. The findings will also help them find out which supply chain management strategies are critical to the success of mobile phone providers.

To researchers and academicians, it is expected that the study will form a base for the development of supply chain management strategies for wire telecommunication companies in Kenya and their affiliated dealers in wireless products and services.

The study will be valuable to investors looking to set foot in the Kenyan market because the study will provide additional knowledge on a Kenyan, and to a large extent, a sub Saharan context on how supply chain management strategies are adopted within the telecommunication industry in Kenya.

## CHAPTER TWO; LITERATURE REVIEW

### 2.1 Overview

The development of the idea of the supply chain owes much to the emergence from the 1950s onwards of systems theory, and the associated notion of *holism* (Cavinato, 1992). This may be summarized by Boulding (1956) that the observation that the behavior of a complex system cannot be understood completely by the disparate analysis of its constituent parts. The supply chain meaning is used in many ways, but three dominate discussion: The supply chain from the perspective of an individual firm, a supply chain related to a particular product or item (such as the supply chain for beef, or cocaine, or oil) and supply chain used as a handy synonym for purchasing, distribution and materials management (New, 1994).

SCM can mean any one of these (indeed, there are a few more possibilities) the various meanings are connected with one another and in some cases they do overlap. The curious and persistent appeal of supply chain terminology is with the inbuilt assumption that there are benefits in taking the wider view (Hall 1995; Saunders 1994). The wider view shows SCM functions cutting across industries. The view widens the focus of SCM to a more transversal one, from the inside of the company to the set of actors that interact in order to develop and produce products for the final customer (Christopher, 1992; Cooper et al., 1997).

In conjunction with the Global Supply Chain Forum, Lambert et al. (1998) offer the following definition of SCM: "Supply Chain Management is the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders". These processes include customary logistics activities such as warehousing, inventory control, and transportation management, as well as non-traditional logistics activities like purchasing, production support, packaging, and customer order processing. SCM is based on the concept that integration across business operations is essential to customer satisfaction, value creation, exceptional returns, and long-run competitive advantage.

## **2.2 Objectives Of A Supply Chain Design**

Organizations are called upon to develop designs and execute strategies that will effectively integrate the management of the supply chain, this ensures that production or service delivery is at the lowest total possible cost. Supply Chain Design (SCD) refers to the process of determining all required components of the supply chain including its structure and operations aligned to customer requirements and supply chain strategy. (Harrison, 2001).

Harrison (2001) outlines the following objectives of a SCD. The supply chain design should ensure that all participants in the chain achieve significant gains, hence giving them an incentive to cooperate. It should enable participants to share forecasts, determine status of orders in real time and access inventory data of partners.

An effective supply chain design should incorporate confidentiality and trust among trading partners, this is essential for the partners to know that they share similar goals and that only actions of mutual benefit will be pursued. The design should promote effective communication through integrated technology and standardized ways and means of communication among partners. The supply chain should have high visibility, major trading partners can connect at any part of its supply chain to access real time data on inventory levels or shipment status.

The ability to detect and respond to unplanned events like a delayed shipment, or warehouse running low on certain items should be captured. Performance metrics are critical in supply chain design; this will confirm that the supply chain is functioning as expected, or that there are problems that need to be addressed. A successful design requires the complete integration of all aspects of the supply chain which include the suppliers, warehouses, factories distributors and retail outlets. This requires cooperation among supply chain partners/members in planning, coordination of activities and information sharing.

The partners/members need to agree on common goals, trust and willingness to cooperate to achieve common goals. Instead of the organizations making plans based on a combination of individual actual orders plus forecast of demand from its immediate customer, by sharing data on end customer sales and partner inventory on real time basis, each organization in the chain can develop plans that contribute to synchronization across the chain.

### **2.3 Objectives Of Supply Chain Strategy**

Typically the aim of the Supply Chain Strategy is to achieve objectives such as delivering products faster into the market, minimizing resource investment, reducing specific costs, reducing specific response and cycle times and pushing new product design faster. The Supply Chain strategy needs to be tailored to match the specific demand characteristics of a product, product family or market (Christopher et al., 2006). Supply chain strategy supports the overall firm's competitive strategy by focusing on driving down the operational cost and maximizing efficiencies. The basic strategy considerations the organizations should pursue according to Christopher et al. (2006) are;

Evaluation of the supply chain formulation of strategy is important to the organization. The organization should ask some 'what if' questions about the supply chain operation. It should evaluate all elements from process, technology, organization, controls and metrics. The evaluation should be specific to each element and objective and continuous with an aim to improve. The second objective is for Supply chain management to focus on the customer. Supply chain management should span all links in the supply chain, from suppliers to the customers. The organization strategy is to ensure that the entire network is aligned to achieve the same goals, serving the end customers needs and to the greatest extent possible, delivering products that customers want when they want them and at the prices they are willing to pay.

Thirdly, there has to be top management buy in. The management of the supply chain should take a top down approach; initiatives should be led and endorsed by the CEO.

This is critical in securing senior management buy in and ensuring that the strategy will yield good results. The fourth objective is to control trade-offs between cost and service. Smart trade-offs (Skinner, 1992; New,1992) between cost and service is critical in the effective design of the supply chain network and to achieving the goal of satisfying the customer needs .An example is overemphasizing on service can lead to excess inventory and capacity. Alternatively, if too much emphasis is put on cost: service elements, stock on hand, quality, and customer satisfaction and on time delivery can suffer which can hurt sales. Supply chain design should address what kind of inventory, plants, warehouses, people, capabilities and suppliers are needed, where they should be located or whether they should be owned or outsourced.

The SCM strategy should also ensure communication between key stakeholders. The objectives of business functions frequently conflict. This can weaken the supply chain and affect the company performance. For example sales are dead set to meet targets regardless of inventory implications, or manufacturing managers being entirely focused on cost reduction while completely disregarding the effects on customer service. Open discussions among business units and a management led initiative to achieve a carefully crafted supply chain strategy are essential to ensure decisions are made to benefit the corporation as a whole.

The seventh strategic objective of a SCM practice is to effectively handle customization. Customers are demanding more customized products and services. Customization can be expensive and wasteful complexity to the supply chain if not carefully planned for and managed. More parts and product configurations mean more suppliers, more inventory, and shorter production run times. Before introducing new complexity and cost to the supply chain, evaluate the additional products and services to the customer and to the company. Complexity can be controlled through effective product architecture and fully understanding associated costs.

Another key objective is understanding the value of technology. Information technology should not be used to replace broken links in the supply chain. Processes complimenting



the companies supply chain management strategy must be designed first then the right technological infrastructure that can support the strategy put in place. Managers may be tempted to reduce the critical human element and rely only on software to manage the supply chain. Software cannot understand the company's strategy or fully replace knowledgeable hands on managers (Harrison et al. 1999). The strategy should also be adaptive to changing realities. Many supply chain initiatives fail because they are constrained by existing supply chain structures in such cases despite the supply chain being optimized by radical altering the practices and processes it is tweaked. Christopher et al. (2006) advises that frequent review of the supply chain with no limits placed on the assessment, is necessary if companies are to ensure that the supply chain strategy remains effective.

#### **2.4 Critical Activities In Supply Chain Management**

An effective Supply chain management practice should have those critical activities that define it and shape the way the practice performs and handles various levels of the chain. These activities include; The Eliminating the bull whip effect. The bullwhip effect is the variability in demand which tends to be magnified as we move from the customer to the producer in the supply chain. The effect indicates a lack of synchronization among supply chain members. Even the slightest change in consumer sales ripples backwards in the form of magnified oscillations upstream (resembling a flick of a bull whip handle), Hau et al. (1997). Because the supply patterns do not match the demand patterns, inventory accumulates at various stages, and shortages and delays occur at others.

Another critical activity is identifying functional products. Functional products are staples that people buy in a wide range of retail outlets, such as grocery stores and gas stations. Because such products satisfy basic needs, which do not change over time, they have stable, predictable demand and long life cycles. However, their stability invites competition, which often leads to low profit margins. Criteria for identifying functional products; product life cycle of more than two years, contribution margin of 5 to 20 percent, only 10 to 20 product variations, an average forecast error at time of production of only 10%, a lead time for make-to-order products of 6 months to 12 months.

Develop innovative products is a critical another critical activity that defines SCM practices. Products such as fashionable clothes and personal computers that typically have a life cycle of just a few months. Imitators quickly erode the competitive advantage that innovative products enjoy, and companies are forced to introduce a steady stream of newer innovations. The short life cycles and the great variety typical of these products further increase unpredictability. According to Fisher (1997), functional and innovative products are differentiated mainly by their demand characteristics.

Establishing a stable supply process is critical to the supply chain. A stable manufacturing process and the underlying technologies that are mature and with a well established supply base are critical to the supply chain. These tend to be highly automated and long-term supply contracts are prevalent. It very important also as critical activity to continuously evolving the supply process. The manufacturing process and the underlying technology are still under early development and are rapidly changing. As a result, the supply base may be limited in both size and experience. It also requires a lot of fine tuning and is often subject to breakdowns and uncertain yields. The supply base may not be reliable, as the suppliers themselves are going through process innovations.

Creating efficient supply chains is a critical activity that utilize strategies aimed at creating highest cost efficiency. For such efficiencies to be achieved, non-value-added activities should be eliminated, scale economies pursued, optimization techniques should be deployed to get the best capacity utilization in production and distribution, and information linkages should be established to ensure the most efficient, accurate, and cost-effective transmission of information across the supply chain.

An important critical activity and which affects other activities mentioned earlier is to risk-hedge the supply chains. Risk hedging is the creation of supply chains that utilize strategies aimed at pooling and sharing resources in a supply chain so that the risks in supply disruption can be shared. A single entity in a supply chain can be vulnerable to supply disruptions, but if there is more than one supply source or if alternative resources

are available, then the risk of disruption is reduced. Chopra and Sodhi (2004) contend that most companies develop plans to protect against recurrent low-impact risks in their supply chains. Many, however, ignore high-impact, low-likelihood risks. By understanding the variety and interconnectedness of supply chain risks, managers can tailor balanced, effective risk-reduction strategies for their companies. Hauser (2003) suggests that in today's increasingly complex environment, risk adjusted supply chain management can translate into improved performance and competitive advantage. Once risk has been taken care of, it is also important to develop responsive supply chains. These are supply chains that utilize strategies aimed at being responsive and flexible to the changing and diverse needs of customers. To be responsive, companies use build-to-order and mass customization processes as a means to meet the specific requirements of customers.

Developing agile supply chains is also another critical activity. The concept of agile supply chains was introduced (Harrison et al. 1999) to transfer and apply the winning strategy of agility to that of supply chains addressing these as the newly accepted units of business. The idea of agility in the context of SCM focuses on "responsiveness" (Lee and Lau, 1999; Christopher and Towill, 2000). These are supply chains that utilize strategies aimed at being responsive and flexible to customer needs, while the risks of supply shortages or disruptions are hedged by pooling inventory and other capacity resources. These supply chains essentially have strategies in place that combine the strengths of hedged and responsive supply chains. They are agile because they have the ability to be responsive to the changing, diverse and unpredictable demands of customers on the front end, while minimizing the back-end risks of supply disruptions. Innovative products with unpredictable demand and an evolving process face a major challenge. Because of shorter life cycles, the pressure for dynamically adjusting and adopting a company's supply chain strategy is great.

Lastly the supply chain should be able to cope with demand and supply uncertainty as a critical activity. In recent years, Demand Chain Management, (DCM) has gained emphasis as a paradigm in the management literature (Selen and Soliman,

2002;Langabeer and Rose, 2002). DCM has gained increasing attention due to the rapid uptake of technology and the shift in power away from suppliers towards the customers (Soliman and Youssef, 2001). The concept of DCM focuses on strategy across the whole supply chain (Williams et al. 2002).Some tools for coping with demand and supply uncertainty include; Outsourcing, Global sourcing, Mass customization and Postponement.

Outsourcing according to William et al. (2002), is the act of moving some of a firm's internal activities and decision responsibility to external providers. The terms of the agreement are established in a contract. Outsourcing goes beyond the more common purchasing and consulting contracts because not only are activities transferred, but also resources that make the activities occur, including people, facilities, equipment, technology and other assets are transferred. The responsibilities for making decisions over certain elements of activities are transferred as well.

Global sourcing is a term used to describe strategic sourcing in today's global setting (Soliman and Youssef,2001). Global sourcing often aims to exploit global efficiencies in the delivery of a product or service. Common examples of globally-sourced products or services include: labor-intensive manufactured products produced using low-cost Chinese labor, call centers staffed with low-cost English speaking workers in India, and IT work performed by low-cost programmers in India and Eastern Europe. While these examples are examples of Low-cost country sourcing, global sourcing is not limited to low-cost countries.

The global sourcing of goods and services has advantages and disadvantages that can go beyond low cost. Some advantages of global sourcing, beyond low cost, include: learning how to do business in a potential market, tapping into skills or resources unavailable domestically, developing alternate supplier/vendor sources to stimulate competition, and increasing total supply capacity. Some key disadvantages of global sourcing can include: hidden costs associated with different cultures and time zones, exposure to financial and political risks in countries with (often) emerging economies, increased risk of the loss of

intellectual property, and increased monitoring costs relative to domestic supply. Roth et al. (2008) say that for manufactured goods, some key disadvantages include long lead times, the risk of port shutdowns interrupting supply, and the difficulty of monitoring product quality.

Mass customization (MC) is the ability of a firm to produce varieties of customized products quickly, on a large scale and at a cost comparable to mass-production through technical and managerial innovations (Pine, 1993; Duray, 2002; Franke and Piller, 2004; Kaplan and Haenlein, 2006) describes the ability of a company to deliver highly customized products and services to different customers around the world. The key to mass customization is postponing the task of differentiating a product for a specific customer until the latest possible point in the supply network.

Process postponement refers to a concept whereby activities in the supply chain are delayed until a demand is realized (Bucklin, 1965; Van Hoek, 2001). Researchers suggest that postponement has the potential to improve responsiveness while reducing inventory, transportation, storage, and obsolescence costs (Yang et al. 2004).describes the delay of the process step that differentiates the product to as late as possible in the supply chain. Process postponement and mass customization go hand in hand.

## **2.5 Supply Chain Practice In Wireless Telecommunication In Selected Countries**

### **2.5.1 Reverse Logistics**

The usage rate of mobile phones and other wireless telecommunication technologies in Hong Kong is relatively high as compared with other Asian countries. (Fulconis, 2007). In order to gain benefits from supply chain strategies, there is a need to investigate the planning, implementation, and Controlling the systems properly (Tan et al. 2003; Naesens, 2007). Since a mobile phone consists of a number of electronic modules, the potential for each of these parts for remanufacturing and reuse is very high, especially some of them are standard modules like radio frequency transceivers, display units, etc

This is called reverse logistics. Reverse logistics is a relatively new research direction in the area of supply chain management (Dowlashahi, 2005).

Reverse logistics “has had a significant economic impact on the industry as well as society” (Krumwiede and Sheu, 2002). However, reverse logistics are generally poorly managed due to the fact that more than one company may get involved in the reverse logistics process, and thus a holistic approach is required (Chapman and Corso, 2005).

In this connection, redesign of the existing forward and reverse logistics processes pose a challenge to many companies. With respect to wireless telecommunication technologies, Guide et al. (2003) demonstrated how reuse or remanufacturing could help to improve the profit of the industry through an analytical model. Amini et al. (2005) showed that reverse logistics system could result in more profit, by designing a reverse logistics system for repair service effectively and efficiently.

The key driving factors for implementing reverse logistics systems for the mobile phone industry have not been investigated. Based on the above discussion, it is not surprising to say that reverse logistics is beneficial to the mobile industry. However, the governing factors in designing such reverse logistics systems are still unclear. On one hand, reverse logistics systems are important to the industry; on the other hand, the low level of importance of reverse logistics relative to the other issues is still a major barrier in realizing reverse logistics systems. There is a dilemma in implementing reverse logistics systems, at least for Hong Kong mobile phone industry. Research agenda should be set up to investigate how to promote the reverse logistics practices, and how to find a compromise in dealing with this dilemma.

### **2.5.2 Defining Supply Chain Structure**

There is overall disagreement of which SCM model to apply, Cooper et al.'s (1997) suggestion, has later on been widened (by Lambert et al., 1998; Lambert and Cooper, 2000), still relies on the three “angles” of supply chain structure, supply chain components and supply chain business processes.

In the Danish Wireless Telecommunication industry, from point of consumption to the end-users, either private or business customers, buy a so-called "Start Kit" (a complete package with a mobile phone, manuals and all the accessories) from retail dealers. The dealers have usually procured mobile phones through their head offices from operators or distributors. This is done because of the high subsidies they get from operators for selling their subscriptions.

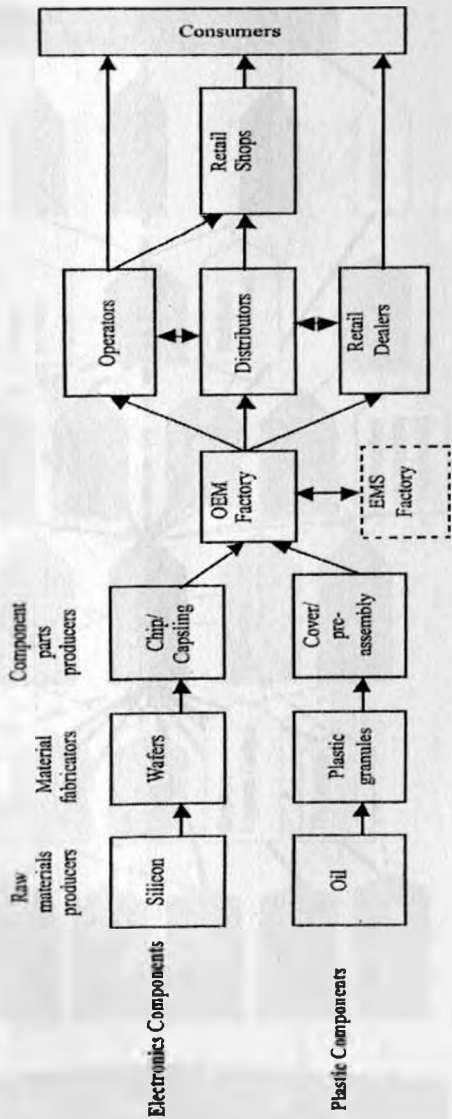
Mobile phones are then ordered through operators but delivered and replenished by distributors. It is common for distributors to handle all logistics activities with the physical products. Operators and distributors have typically bought the mobile phones directly from mobile phone producer country representatives. They have ordered from a nearby factory or distribution center depending on capacity and model etc. The factory has wholly or partly manufactured the mobile phones or used contract manufacturers that are called Electronics Manufacturing Service (EMS) providers. The manufacturing process consists broadly of three phases: Surfaced mounted assembly of printed wiring cards/boards, automatically or manually mobile phone assembly, and finally packaging followed by shipment.

The Original Equipment Manufacturer (OEM) sources the thousands of components included for mobile phone production from local, regional and global component suppliers. The suppliers to the market are based on forecasts, preferences and appointments with regional operators and distributors. The flow of information contains order management and information management about planning of the daily operations, e.g. sales and forecasts data exchange. Dealers collect and send in their point of sales data to their head office via fax, telephone or Internet/intranet. The dealers meet regularly with operators, OEM and distributors to exchange sales information.

At the operators these data are used to hold up against their forecasts, which are used for procurement from the country OEM based on expected sales for the coming period. The OEMs use forecasts and less often regional sales data for planning procurement from the component suppliers. Component suppliers produce their components based on OEMs' forecasts or order. Olhager et al. (2002) present the mobile phone supply chain as shown

here below. It must be stressed that this structure only works for voice products and strictly for mobile phones and Olhager et al. (2002) did not envisage a GSM service provider also selling data products or engaging in the money transfer services as seen by Safaricom Ltd.

**Figure 2.1: Mobile Phone Supply Chain Structure Restricted To Voice Products**

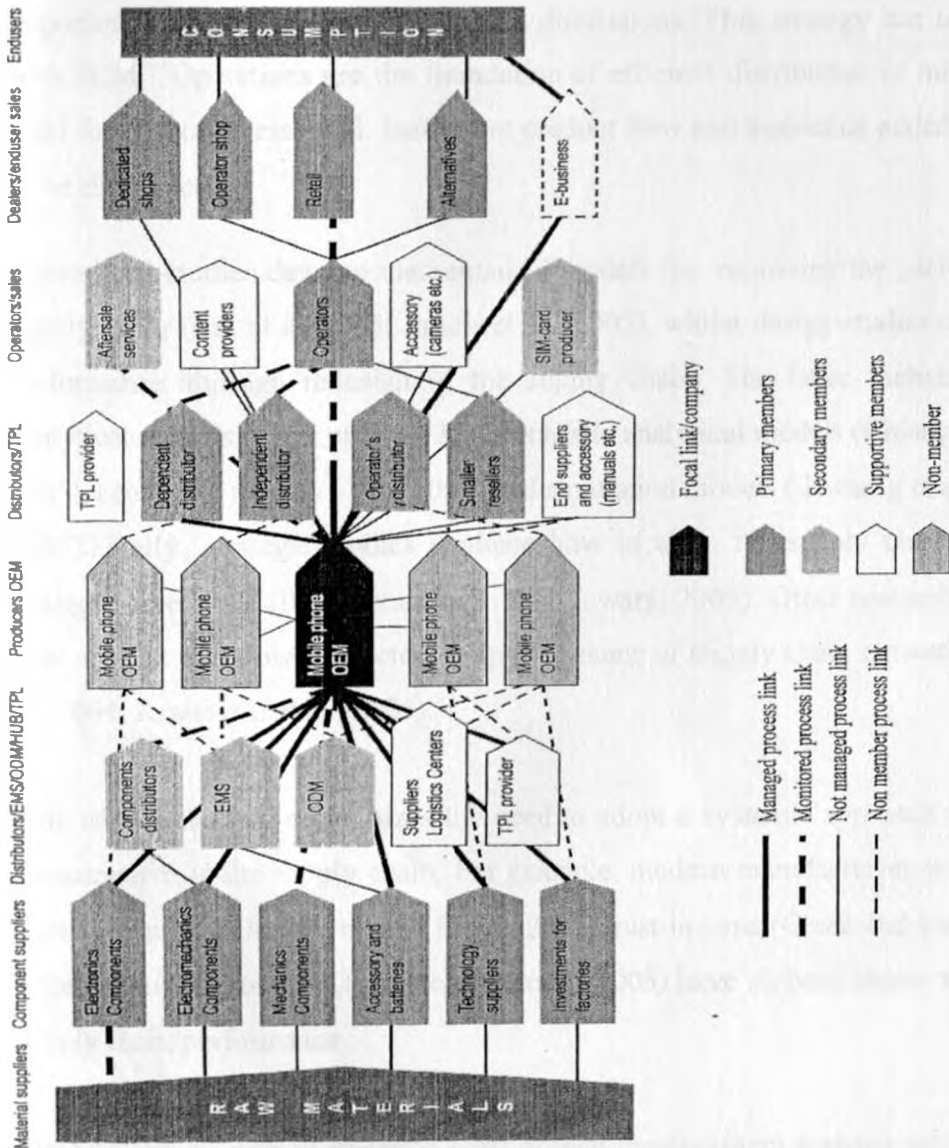


Source;Olhager et al (2002). Supply chain impacts at Ericsson – from production units to demand-driven supply units. *International Journal of Technology Management*. Vol. 23.



Lambert et al came up with a more elaborate structure that envisage a mobile phone company also defining other products in its supply chain that complement voice products as seen below to describe the Danish mobile phone wireless technology supply chain.

**Figure 2.2: Wireless Supply Chains For Voice, Data, Money Transfer And Other Products**



Source Lambert et al (2004), Lambert, D.M., Cooper, M.C., Pagh, J.D. (1998). Supply chain management: implementation issues and research opportunities. *The International Journal of Logistics Management*. Vol. 9.

## 2.6 Operational Performance In A Supply Chain Context

The concept of performance and, more specifically, operational performance has received considerable attention in the Operations Management literature. Slack et al.(2004) distinguish five (operational) performance dimensions: quality, reliability, speed, flexibility and cost. Other authors use the same or related dimensions (Hill, 2000; Krajewski and Ritzman, 2002). The operations strategy of the company indicates the importance of each of the performance dimensions. This strategy has to be integrated with SCM. Operations are the foundation of efficient distribution or manufacturing. A solid foundation is essential. Inefficient product flow and non-value added activities need to be eliminated.

Operational studies develop mathematical models for improving the performance of the supply chain (Lin et al.,2005; Smith et al., 2005), whilst design studies aim to optimize performance through redesigning the supply chain. The latter include deterministic analytical models (Chen et al. 2005), stochastic analytical models (Chiang and Monahan, 2005), economic models ( Wu, 2005) and simulation models ( Hwarng et al. 2005; Reiner, 2005).Finally, strategic studies evaluate how to align the supply chain with a firm's strategic objectives (Balasubramanian and Tewary, 2005). Other researchers focused on how conflict and power affected the performance of supply chain networks (Bradford et al., 2004; Krajewski et al., 2005).

This wider literature emphasizes the need to adopt a systemic approach to performance measurement in the supply chain. For example, modern manufacturing practices such as quality management ( Flynn and Flynn, 2005), just-in-time (Green and Inman, 2005) and information technology (Dyapur and Patnaik, 2005) have all been shown to affect overall supply chain performance.

The problem of how to integrate performance measurement systems with SCM has not been adequately addressed. This is important since as Wood et al. (2004) observe, bundling, or combining modern manufacturing practices can lead to statistically significant increases in performance ( Flynn and Flynn, 2005). Moreover, practices such

as just-in-time implicitly privilege certain metrics, which may or may not be aligned with the current strategic objectives. For example, whilst just-in-time encourages low inventory levels, this may conflict with the strategic goal of increased supply chain flexibility. Existing measurement systems for evaluating the performance of supply chains tend to be static rather than dynamic. So, whilst the need to keep measures aligned with strategy has been well rehearsed within the literature, surprisingly little attention has been paid to the problem of the ongoing management of performance measurement systems, or the forces affecting their evolution over time (Waggoner et al., 1999; Kennerley and Neely, 2002, 2003).

Supply Chain Management must define and efficiently utilize its spanning process capabilities, outside-in process capabilities and inside-out process capabilities in order to manage performance in the organization (Day 1994). Spanning process capabilities relate to the processes that support the anticipated needs of patrons being fulfilled by the business. They do so primarily through integrating the outside-in and inside-out capabilities. Spanning process capabilities include purchasing, customer order processing, strategy development and information dissemination.

Outside-in processes capabilities refers to the group of capabilities that enables the company to compete by forecasting and acting on changes in markets through the development of sound relationships with suppliers, channel members, and customers. Inside-out process capabilities are those internal capabilities that enable the firm to exploit opportunities in the environment. According to Day (1994), these activities include packaging, warehousing, finished goods, inventory control outbound and outbound transportation. It is important for companies to sustain these capabilities to realize improved performance .

Managers have traditionally focused on improving the performance of the organizational entity for which they are directly responsible. Supply Chain Management requires an external focus in which managers must consider the impact of organizational strategies on supply chain partners. Attempts to optimize organizational performance may

negatively impact overall supply chain performance, thus damaging the competitive advantage of the chain (Chopra and Meindl,2004; Meredith and Shafer, 2002).

In order then to establish a strong link between supply chain management and operational performance, supply chain managers must address effectively the following problems as shown by (Chopra and Meindl,2004; Meredith and Shafer, 2002),distribution network configuration problems, what distribution strategy to adopt, what trade offs to implement in logistical activities, integration of information through the supply chain, Inventory management and address cash flow issues like arranging payment terms.

## **2.7 Operational Performance In Wireless Telecommunication Supply Chains**

According to Lehtinen (2001) and Fisher (1997) different product parameters, e.g. product technology, level of standardization and product life cycle (PLC),can be used to explain the optimal structure of wireless supply chains. Product complexity dimension in terms of the number of components and level of technology also appears to have an impact on the structure and has implications for the complexity of network management requirements to the supply chain members.

According to Bechtel's (2001) words, the characteristics for wireless telecommunication technologies could be seen to combine volatile, unpredictable demand, short product development cycles, high design and manufacturing complexity, and a multi cultural, global market. OEMs, contract manufacturers, distributors and component suppliers find it difficult to be successful. The risk is high because product obsolescence occurs quickly: there is no margin for errors in demand forecasts that are used by all players in the supply chain for planning purposes and therefore performance requires very close monitoring of the supply chain process. And with every participant on a just-in-time delivery schedule with suppliers and customers, panic can easily set in when components become scarce or as we see now, when demand becomes scarce.

Wireless telecommunication technologies should be regarded as innovative products with a high level of technology and innovation requiring and new product launching

constantly Fisher(1997). This way the products have a very short products life cycle, which means that the “window of revenue opportunity” is very short.

## **2.8 Summary Of The Literature Review**

The literature reviewed in this chapter highlighted what is meant by supply chain, management and operational performance. The literature reviewed the links between supply chain management and operational performance in the wireless telecommunication industry. Supply chain management needs to address information management, trade offs, cash flows, inventory, distribution network configuration and distribution strategies to be able to establish a link with operational performance. Critical activities in a supply chain management function and objectives of a supply chain function have been highlighted to guide the researcher in identifying this activities and objectives while gathering information for the study from the selected samples.

The literature has also reviewed the issue of how to measure the performance of a supply chain management function. A presentation of different supply chain management practices with specific emphasis in the wireless telecommunication industry in selected countries (Hong Kong and Denmark), which are emerging practices in the field of Supply Chain Management has also been reviewed to aid the researcher benchmark the research work with emerging trends in the industry and gain wider knowledge of SCM practices from other countries. This is important as it will guide the researcher in carrying out relevant data collection and analysis so as to seek answers to the research question.

## **CHAPTER THREE; RESEARCH METHODOLOGY**

### **3.1 Research Design**

This study sought to establish the relationship between Supply Chain Management and performance within Safaricom Limited. The study addressed the challenges faced in adopting supply chain management strategies in the same company. It is for this purpose that a case study research design was adopted because the objectives of the study require an in depth understanding of the Company.

### **3.2 Sampling**

The sample was drawn from senior managers at Safaricom limited senior managers at DHL Kenya limited, Huawei Technologies Limited and Siemens Mobile and all authorized dealers of Safaricom products and services who currently number over 400. A random stratified number sampling method was used to ensure broader and relevant representation.

### **3.3 Data Collection**

The data for the research was sourced mainly from both primary and secondary data. The primary data was collected through in depth interviews (see Appendix 2) of senior managers to gather detailed information on current supply chain management practices. A semi-structured questionnaire was administered using a drop and pick later to dealers chosen in the sampling stage. The questionnaire is purposively simple to increase the odds of completion and participation. Secondary data was collected from websites on telecommunication, Newspapers, books, financial documents of the company, Safaricom bulletins and magazines.

### **3.4 Data Analysis**

The main tool used for analysis was content analysis. Other tools like descriptive statistics, percentages, and cross tabulation procedure were also used. This was necessary given that this is a case study involving an in depth study of Safaricom limited. The analyzed data sought to establish the extent of the impact of supply chain management on

operational performance of the company, identify if Safaricom has attained the goals of supply chain management (effectively handling customization, customer focus, effective distribution network and understanding value of technology).The data also sought to match critical supply chain design strategies to Safaricom's operations by establishing that Safaricom is able to identify functional products and risk hedge its supply chain. The data also sought to establish that the company develops responsive and agile supply chains, employs outsourcing techniques in its supply chains, continuously evolves the supply chain and creates innovative products to complement its supply chain.

## CHAPTER FOUR; DATA ANALYSIS, FINDINGS AND DISCUSSIONS

### 4.0 Introduction

The study sought to establish the impact of supply chain management practices on Safaricom's performance. The data was collected through both a semi structured questionnaire and an interview guide (see Appendix 1 and 2). A total of 74 questionnaires were distributed of which sixty responses were completed and returned. This gives a response rate of 81.1% and a non response rate of 18.9%. 25 respondents from middle and senior management were separately interviewed using the interview guide in appendix 2 in addition to answering the questionnaires. In section A of the questionnaires returned, question one had a response rate of 3.4%. That is the name of the organization; many firms did not complete question one citing confidentiality of the company as a reason. The data was mainly analyzed through content analysis which sought an objective, systematic and qualitative description of a manifest content of supply chain practices, challenges and performance related issues.

### 4.1.1 Response To Bio Data Information

Section A of the questionnaire aimed to establish the academic level, length of service in the wireless industry and the position of the respondents' organization in the supply chain. This data was analyzed using frequencies and percentages.

**Table: 4.1.1 Respondents According To Level Of Education**

Education level	Frequency	Percentage
Primary	-	
Secondary	3	5%
College	17	28.3%
Degree	24	40%
Masters	15	25%
Phd	1	1.7%
Total	60	100%

*Source: Research data*



28.3 % of the respondents were college level graduates. This figure represented the bulk of the dealer network. The Degree level (40%) and Masters level (25%) represented both dealers and senior management from most of the Supply chain partners. 95% of the respondents have at least a college education and are able to better comprehend supply chain management questions raised in the questionnaires provided.

**Table 4.1.2: Duration Respondent Has Worked In The Industry**

Duration	Frequency	Percentage
Below 2 years.	10	16.7%
Between 2 & 5 years.	38	63.3%
Over 5 years	12	20%
Total	60	100%

*Source: Research data*

The majority of respondents (63.3%) have been in the industry for a period of between 2 and 5 years. This is attributed to the wireless industry being a relatively new industry in the Kenyan Market. However there was still 20% who had been in the industry for more than five years. This represents the early adopters in the industry with considerable experience in the wireless industry supply chain.

**Table 4.1.3: Category Of Supply Chain Partner**

Category	Frequency	Percentage
Full Dealers	18	30%
Airtime dealer	14	23.3%
Data dealer	7	11.7%
M Pesa dealer	12	20%
Equipment Supplier	2	3.3%
Contracted business	4	6.7%
Outsourced business	1	1.7%
Others	2	3.3%
Total	60	100%

*Source: Research data*

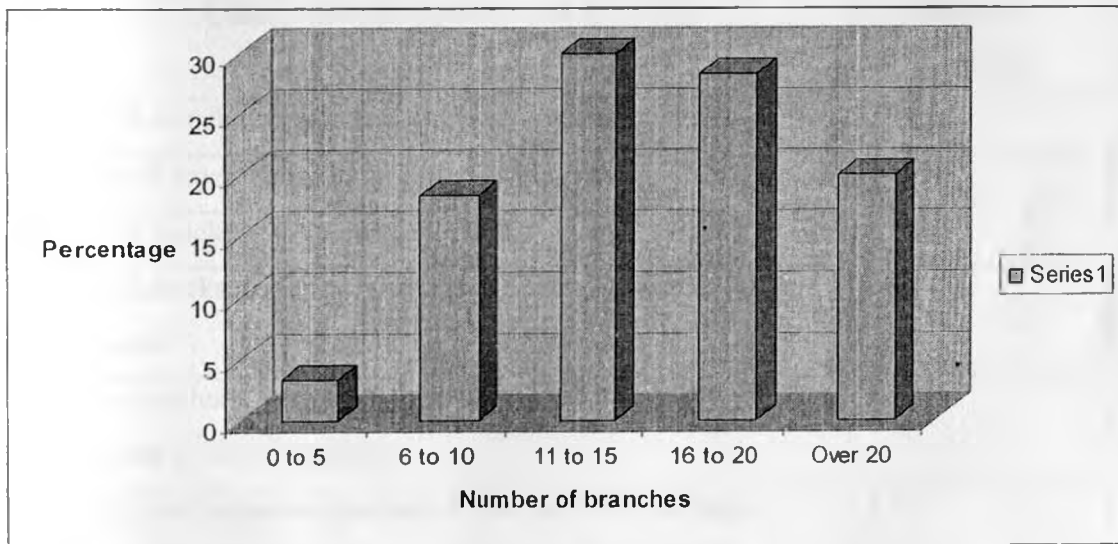
Full dealers form the majority the respondents at 30%. And respondents drawn from the outsourced business formed the least at 1.7%.

**Table: 4.1.4 Branch Network Of Safaricom Supply Chain Partners**

Branches	Frequency	Percentage
0-5	2	3.33%
6-10	11	18.33%
11-15	18	30%
15-20	17	28.33%
Over 20	12	20%

Source: Research data.

**Figure 4.1 Bar Graph Representing Branch Networks Of Supply Chain Partners**



Source: Research data

It can be observed from the graph that the longest bar is supply chain partners with more between 11 to 15 branches which represents 30% of the respondents and which form the bulk of the Safaricom dealer network interviewed in this study. 3.33% of the supply chain partners interviewed have fewer than five branches. This represent respondents who form

outsourcing activities for Safaricom limited and mostly operate one main office closer to Safaricom offices in Nairobi.

#### 4.2 Challenges Faced In The Supply Chain

The interviewees responding to the challenges faced in the supply chain were asked several questions that pointed towards supply chain management challenges. Part one of the findings of the structured questionnaire tested the respondents' level of agreement of the questions are represented here below in the form of mean scores from the range of 1 to 5.(using the following key: 1 strongly disagree, 2=disagree.3=cannot answer,4=Agree,5=strongly agree.)

**Table 4.2.1: Challenges Faced In The Supply Chain**

CHALLENGES (QUESTIONS)	MEAN SCORES
The cost of distributing products to your branches is too high	2.31
Deliveries of stocks from Safaricom is efficient	4.12
Ordering of stocks is fully computerized	4.52
Security of stocks while in transit from Safaricom can be easily compromised	2.24
Inventory problems have been the major cause of erosion of market share to the competition	1.27
Availability of Safaricom products in the market is the major factor to Safaricom's maintaining and defending its market share	3.5

*Source: Research data*

The respondents scored highly when asked about the level of computerization in the supply chain, 4.52 out of a scale of one to five this show that most respondents 'strongly agree' there is full computerization with regards to the process of ordering stock from Safaricom limited. Most respondents 'disagree' with a score of 2.31 that cost of distributing products to branches is too high. Respondents cite that Safaricom has

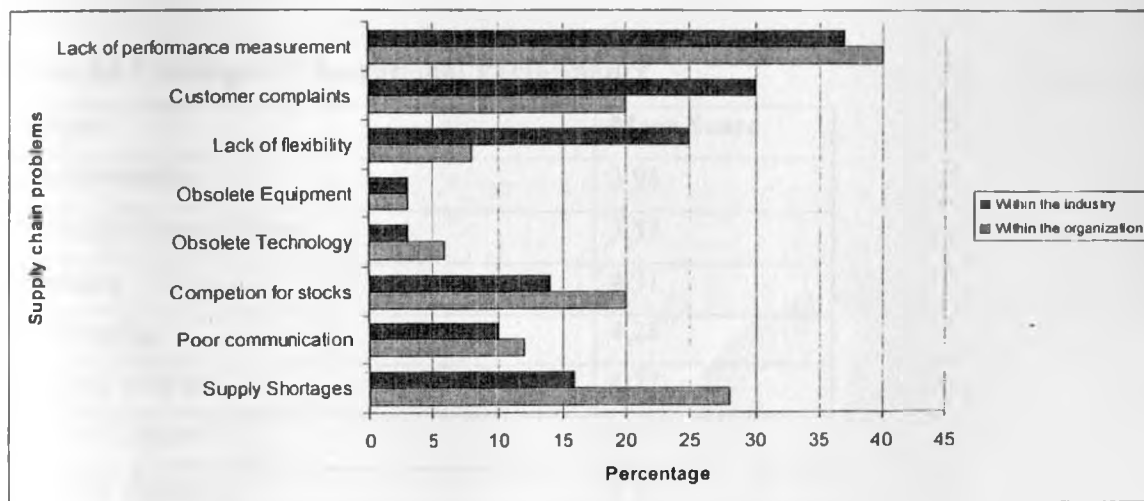
leveraged the services of distributing products to branches to G4S which has considerably reduced the distribution costs of other supply chain partners. Respondents 'strongly disagree' by a mean score of 1.27 that inventory problems are the major cause of erosion of market share to the competition. Most respondents say other factors like product innovation pose a higher threat to market erosion of the company than inventory problems. They affirm that Safaricom does not have a lot of inventory problems to pose a threat on eroding its market share. Respondents also 'agree' by a mean score of 3.5 on a scale of 1 to 5 that the presence of Safaricom products in the market is the major factor to Safaricom's maintaining and defending its market share.

**Table 4.2.2 Findings Of The Cross Tabulation Between Supply Chain Challenges In The Industry And How They Affected The Internal Organization**

<b>Problem.</b>	<b>Please tick if problem exist in your supply chain.</b>	<b>Please tick if problem has directly affected your organization.</b>
Supply Shortages	28%	16%
Poor communication in the supply chain.	12%	10%
Competition for stocks.	20%	14%
Obsolete technology	6%	3%
Obsolete equipment.	3%	3%
Lack of flexibility among partners in the chain.	8%	25%
Customer complaints.	20%	30%
Lack of performance measurement in the supply chain	40%	37%

*Source: Research data.*

**Figure 4.2 Summary Of Comparisons Between Challenges Within The Industry And Within The Organization**



Source: Research data

28% of the respondents agreed that there existed supply shortages in the industry but only 16% said that the supply shortages affected their organizations directly. Respondents supply different products and the discrepancy in the results of the respondents suggest to the fact that while some products experience greater instances of supply shortages, other products did not. Airtime products were singled out as having consistent supply and phone lines (sim cards) products had inconsistent supply in some instances. 40% of respondents wanted more performance measurement mechanisms instituted in the industry. Lowest percentage was seen when respondents were asked about the existence of obsolete equipment in the supply chain. Only 3% of all the respondents agreed that obsolete equipment was a problem. This low number was attributed to the fact that Safaricom has invested heavily in modern equipment and technology as confirmed by the interviewees. This result also confirms the practice of continuously innovating and improving infrastructure within the Safaricom supply chain.

### 4.3 Findings Of Operational Performance Of The Supply Chain

Respondents were tested on operation performance dimensions in the supply chain. The data was analyzed using mean scores on a scale of 1 to 5.

(Respondents were to rate performance dimensions using the following guide [1].Very poor, [ 2]. Poor, [3].Good, [ 4].Very good, [5] Excellent.)

**Table 4.3 Findings Of Operational Performance**

Activity	Mean Score
Order processing	3.98
Information dissemination	3.52
Packaging	4.31
Warehousing	4.28
Inventory control	4.77
Security of stocks	4.12
Order fulfillment	3.64
Flexibility of ordering	3.57
Cash flow management	2.79
Accuracy of orders delivered	3.91
Cost of procurement process	2.99
Quality of service.	3.54
Quality of products.	4.35
Timeliness of innovations of products	4.01
Timeliness of correction of errors	4.42
Timeliness of delivery	3.98

*Source: Research data*

In the final analysis good inventory controls scored highly with a mean score of 4.77 meaning that inventory controls were ‘excellent’ on scale of 1 to 5. Managers interviewed to cross check on this score attributed the good result to the sale of airtime which forms the bulk of Safaricom business. Airtime is under strict controls. Inventories of airtime are sold in a ‘deactivated form’ and pose no threat of being stolen because the airtime is worthless. Once the airtime is delivered at the dealers premises, it is ‘activated’ and ready for resale. All the airtime procurement transactions are captured in the Safaricom computer systems and the whole process is fully controlled.

Timeliness of correction of errors scored highly at 4.42 'excellent'. This score was attributed to the recently launched online product ordering systems at Safaricom that counter checks orders placed by dealers. The online system ensures that correct quantities are packed and delivered to the correct address. The lowest score in analyzing the operational performance was cash flow management with a mean score of 2.79 out of a scale of 1 to 5. The interviewees attributed this score to the fact that older dealers had tri-partite agreements between Safaricom and leading banks like CFC Stanbic to secure overdraft facilities. Newer dealers, on the other hand, had to first of all establish a good reputation before they could enjoy the same privileges. Dealers were also required to pay cash upfront to procure phone line sim cards, sell the lines at a loss in the market and then recoup the losses later once the lines were connected by a customer. This business model held up cash flows that would otherwise be used to buy more airtime on a daily basis.

#### 4.4 Findings Of Supply Chain Strategies Adopted

Respondents were asked their opinions on the extent Safaricom limited adopts the listed strategies in the process of supplying goods. Respondents were to use the following guide, 5 - a very large extent, 4 – large extent, 3 - some extent, 2-small extent, 1- no extent.) The results were analyzed using mean scores as shown below.

**Table 4.4 Findings Of Supply Chain Strategies Adopted**

Strategy	Mean score
Focus on the customer	4.62
Efficient communication	3.98
Incorporation of technology	4.31
Adaptation to changing realities	4.11
Dealer education of supply issues	2.57
Controlling trade offs of cost and service	2.99
Evaluating of SCM strategies	3.11

*Source: Research data*

From the findings, the strategy of focusing on the customer scored highest with a mean score of 4.62 on a scale of 1 to 5. The respondents interviewed concur saying that the

company has instilled a very strong culture among its employees to ensure they take care of the whole customer experience. The postpaid service, for example, continuously conducts customer surveys to ensure Safaricom continues to serve its customers well. Recognizing that its customer base is diverse (i.e., corporate vs. individual, urban vs. rural, wealthy vs. poor), the Company has a history of introducing innovative products and services (most recently, M-PESA). The findings also show that dealer education in the supply chain scores lowest with a mean score of 2.57 on a scale of 1 to 5. This is attributed to the large number of dealers recruited from 2007 onwards bringing the dealer network to over 500. The strategy of always incorporating technology and correct and appropriate use of technology also scored highly among the respondents citing the fact that Safaricom had the latest 3G network from Huawei that improved its telecommunication infrastructure. No other wireless telecommunication provider in Kenya had incorporated this technology into their system by the time of writing these research findings.

**Table 4.5: Responses To Achievement Of Supply Chain Design Objectives**

OBJECTIVE	YES	NO	ONGOING
Sharing of forecasts in the chain	54%	12%	34%
Ability to determine status of orders anywhere in the Supply chain	52.3	11.7%	36%
Easy access of inventory data at any point in the chain	77%	8%	15%
Seamless flow of Information in the chain.	50%	32%	18%
All players can easily detect and respond to unplanned events	52%	12%	36%
Incorporation of technology in the supply chain	80%	6%	14%

*Source: Research data.*

This section tested whether the Safaricom supply chain design has effectively achieved the objectives of an efficient supply chain design. All the 'yes' responses were above the 50 percent mark indicating that the supply chain design was averagely well thought out. The most impressive response was that 80% of the respondents agreed that the company had incorporated technology into the supply chain. This was confirmed by the respondents interviewed who pointed out to the fact that the company had



revamped its order processing where dealers were able to place their orders online and confirm payment within thirty minutes of placing the order. Instructions could further be made online to have the goods delivered to remote branches saving the customer a lot of delivery costs. 32% of the respondents said that they did not agree that there was a seamless flow of information in the supply chain and 36% said that the company was making improvements on methods of detecting and responding to unplanned events in the chain and this are quickly communicated through out the supply chain through bulletins sent out mostly by the principle company Safaricom.

**Table 4.6: Frequency Of Mentions Of Supply Chain Critical Activities In The Questionnaire And Interview Guide**

Critical Supply chain activities	Questionnaire No of affirmative responses	Interview Guide No of Affirmative responses	Examples of products / services mentioned
Identifying functional products	53 88.33%	20 80%	Scratch cards
Developing innovative products	55 91.67%	24 96%	M pesa and Okoa Jahazi
Establishing Stability in the chain	- -	19 76%	Incorporation of G4S services
Creating efficiency in the supply chain	- -	19 76%	Product distribution channels
Risk hedging the supply chain	- -	11 36.67%	Poor infrastructure sharing. Poor corporation on cross network Tarrifs.
Agility in the supply chain	49 82.20%	23 92%	Outsourcing ,Cross border money transfer Mass ustomization M pesa
Taking care of Demand and Supply uncertainty	43 71.67%	22 88%	Incorporation of G4S services, Mass customization and outsourcing.

Source: Research

The respondents interviewed identified a diversified range of activities that pointed towards the prolific nature of Safaricom supply chain. Most of the activities identified by Hau et al (1997), Fisher (1997) and Hauser (2003) were evident in the companies supply chain. The interview guide and the questionnaires were analyzed using content analysis to identify these activities. Below are the results from table 4.6 are here below.

Identifying functional products as a critical activity in the supply chain can well be exemplified by the mobile phone scratch card as said by 88.33% of those who filled the questionnaire and 80% respondents interviewed. The scratch card has most of the characteristics of a functional product which is critical for mobile phone companies in determining their supply chain strategies. 55% of questionnaire respondents and 24% of those interviewed mentioned M pesa as an innovative product. Innovative products define critical activities in any supply chain. Also identified as an innovative product is the recent *Okoa Jahazi* products that loan customers credit of up to 50 Kenya shillings in the form of airtime to be paid back within three days.

After facing considerable competition in the voice arena, Safaricom turned its focus on data with the unveiling of Safaricom Business unit that markets high-speed data services to the corporate and business segments, strengthening the company's position to deliver end-to-end data and voice communication services. This change of focus pointed out to another critical activity in the supply chain which is to continuously evolve the supply chain process.

The interviewees pointed to several developments that define another critical activity in the supply chain of the company. The company was able to have efficient network coverage by employing strategies aimed at creating highest cost efficiency. The data was objectively captured in the interview guide where 76% mentioned efficiency as a critical activity in the Supply chain. For such efficiencies to be achieved, non-value-added activities should be eliminated, scale economies pursued, optimization techniques should be deployed to get the best capacity utilization in production and distribution, and information linkages should be established to ensure the most efficient, accurate, and

cost-effective transmission of information across the supply chain. The interviewees gave the example that Safaricom had set up 100 base stations powered by solar and wind energy at a cost of 250 million Kenya shillings (US\$3.8 million). The base stations are in remote locations such as Lokichoggio, Kapenguria, Kakuma and Lodwar in Northern Kenya, and are meant to increase network coverage and capacity countrywide.

The company scores poorly in terms of risk hedging activities in the supply chain, though internally, the company has a good risk management record according to the results of the structured questionnaires ( see Table 4.2.1), 2.24 out of a scale of one to five of the respondents 'Disagree' that security of stocks while in transit can easily be compromised. Externally, it is common in the mobile telephony market in Kenya for firms to share telecom infrastructure and partner on cross network call tariffs. Safaricom, according to 36.67% of respondents interviewed show that there is a poor risk hedging effort with external players. Respondents point out the refusal by Safaricom to cooperate in partnering with Zain on cross network tariffs and the matter had to be resolved by the Communications Commission of Kenya (CCK). Risk hedging is the creation of supply chains that utilize strategies aimed at pooling and sharing resources in a supply chain so that the risks in supply disruption can be shared.

Players in the Kenyan wireless industry have been resisting efforts by the industry regulator CCK to have them share their equipment in what is called infrastructure sharing, substantially reducing the costs of installation and leaving more money on the table for allocation into improving services, capacity building and innovation. Fixed assets – like masts, base stations and cables – serve best as barriers to entry in capital intensive industries that churn out physical products like beer, newspapers and steel rods. While Safaricom keeps hanging on to infrastructure that may give them an edge for a while, the vast changing technology environment means that they will perpetually need new capital for network upgrades a task which would be easier with the knowledge that the network is bringing in some money from leases, besides the core business.

82.2% of questionnaires respondents and 92% of interviewees mention the presence of an Agile supply chain. Mass customization has been addressed efficiently in the supply

chain in software services within the mobile platform as testified by the respondents. The respondents also point to the power of mass customization seen through the M pesa software. Here, a customer chooses what they want to pay for and can customize their need by directing Safaricom to introduce a new till in the software to allow the payments to a particular account.

Having agile supply chains has also been identified as critical supply chain activity by 82.2% of questionnaire respondents and 92% of interviewees. Respondents mention the recent cross border money transfer where Vodafone, Safaricom and The Western Union Company announced that they will partner to pilot a cross-border Mobile Money Transfer service between the U.K. and Kenya. This service will enable customers to send cross-border remittances from select locations directly to Safaricom mobile subscribers in Kenya generally in minutes. This initiative has since come to operations from October 2009. The initiative uses Western Union's trusted global "hub" for processing cross-border remittances. It builds on the success of M-PESA. The partnerships foster the agility of Safaricom supply chain to react to changing needs of customers.

Respondents also pointed out outsourcing activities within the supply chain when identifying the Agility activities in the Supply chain. The kick start of Kenyan local outsourcing took place in 2007 when Safaricom announced that they were going to outsource the call centre part of their business. This initial announcement was later on overturned and Safaricom limited decided to have their own internal call center located in Mlolongo area of Nairobi. The company continues to outsource other non core activities like building and maintenance of base stations all around the country.

#### **4.7 Impact Of Supply Chain Management Practices On Performance**

Two summaries have been created from the contents of the research findings presented. This summaries are the Supply chain practices identified in Safaricom and the extent of their adoption in the company and a summary of the operational performance dimensions. The two summaries have been compared to illustrate the impact of Supply chain management practices on operational performance in Safaricom.

**Table 4.7.1: Summary Of Supply Chain Management Practices And Percentage Of Their Application In The Organization**

Summary of Supply chain practice	Percentage applied in the supply chain
Customer focus	92.50%
Efficient communication	79.60%
Using technology	86.20%
Agility in the SC	82.20%
Sharing forecasts	54.00%
Ability to determine order status	52.00%
Innovation practices	55.00%
Risk hedging	36.67%
Taking care of demand and Supply Uncertainty	75.00%
Stability in the chain	76.00%
Easy access to inventory data	77.00%
Controlling trade-offs in the chain	59.80%

*Source: Research data (Tables 4.4, 4.5, 4.6 above)*

**Table 4.7.2: Summary Of Operational Performance Dimensions**

Performance dimensions	Mean	Percentage performance
Order processing	3.98	79.60%
Information dissemination	3.52	70.40%
Packaging	4.31	86.20%
Inventory control	4.77	95.40%
Order fulfillment	3.64	72.80%
Flexibility of ordering	3.57	71.40%
Cash flow management	2.79	55.80%
Accuracy of orders delivered	3.91	78.20%
Cost of procurement	2.99	59.80%
Quality of service	3.54	70.80%
Quality of product	4.35	87.00%
Timeliness of innovations	4.01	80.20%
Timeliness of delivery	3.98	79.60%

*Source: Research data (Table 4.3)*

A comparison of tables 4.7.1 and 4.7.2 shows an impressive percentage of both the level of supply chain management practice adopted in the organization and performance. The lowest score on the adoption of supply chain management practices from the respondents was risk hedging practices in the supply chain which was the only score below the 50% mark at 36.67%. This shows that Safaricom took a keen interest on adoption of accepted

supply chain management practices in the company. All other practices identified in the supply chain scored higher than the 50% mark. Seven out of the twelve supply chain management practices examined scored above the 75% mark. This indicates a very strong adherence to conventional practices by the company. The effect of this impressive adoption of the practices is a very impressive operational performance as attested by the respondents in table 4.7.2. In this table, seven out of thirteen performance dimensions examined scored above the 75% mark which is an impressive performance and compares closely with the seven supply chain practices that had an adoption rate of 75% and above.

In figure 4.7.1, Four out of the twelve supply chain practices had between 50% to 75% adoption rate in the supply chain according to the respondents, while in figure 4.7.2, five out of the thirteen operational performance dimensions scored between 50% and 75% also showing a direct relationship between adoption of supply chain management practices and operational performance.

**Table: 4.7.3 Summary Of Supply Chain Practices Adoption And Performance Dimensions**

Percentage Range	Supply chain practices adopted	Operational Performance dimensions
Between 75% - 100%	7	7
Between 50% - 74%	4	5
Below 50%	-	1
Total variables examined	13	14

*Source: Research data*

From the results of table 4.7.3 it can be deduced that supply chain management practices adopted in the Safaricom supply chain have a direct relationship on the performance of the company. Seven Supply chain management practices adopted to the rate of between 75% to 100% resulted in seven performance dimensions scoring between the rate of 75% and 100%. Four practices adopted to between 50% and 75% resulted in five performance dimensions scoring between 50% and 100% in performance ratings.

## **CHAPTER FIVE; SUMMARY, CONCLUSIONS AND RECOMENDATIONS**

### **5.1 Introduction**

The research took a wider view of Supply chain management and sought to look at all the dimensions and partners in the chain. This is in accordance to Cox et al (1995) definition of supply chain management which states that Supply Chain Management is the function within and outside a company that enables the value chain to make products and provide services to the customer.

### **5.2 Summary Of The Findings**

#### **5.2.1 Challenges Faced In The Wireless Industry**

The biggest challenge identified in Safaricom supply chain was efficient management of cash flows by the partners in the chain and especially those downstream and closer to the customer, 50% of the respondents do not agree with current management of cash flows in the supply chain. The mobile phone scratch card holds up a lot of working capital posing very high risk on dealers but lesser risks upstream in the supply chain and closer to the principle company Safaricom limited. In the overall analysis, a lot of challenges seem to have been addressed in the past like inventory delays which have now been replaced by an efficient online ordering system. The recent partnership between G4S and Safaricom to help deliver products further down the supply chain has worked well in leveraging distribution costs for the dealer and freeing up much needed cash flows that can be used to order more stock from the mother company. It is also important to note that although there are supply shortages that affect players in the industry, the problem is not prevalent and the response to address such problems when they occur is fast. 91.4% of the respondents attested to evidence that a lot of technological investment has been put in the industry increasing the efficiency of the supply chain and improving company performance.

### **5.2.2 Adoption Of Strategies In The Supply Chain**

The strategy of focusing on the customer is valued within the Safaricom supply chain, 92.4% of the respondents agree that Safaricom focuses on the customer. The interviewees say that the Company has instilled a very strong culture among its employees to ensure they take care of the whole customer experience. The postpaid service has continuously launched customer surveys to ensure Safaricom continues to serve its customers well. It is however crucial for the company to invest in education of its partners on supply chain mechanisms especially after the massive expansion of its dealer network from the year 2007. Technology incorporation in the chain came out as a strong strategic dimension of the company with 86.2% of the respondents attesting to that fact. The company was found to incorporate correct and appropriate use of technology. A most commonly cited example by respondents was the strategic partnership with 3G network suppliers that improved its telecommunication infrastructure. No other wireless telecommunication provider in Kenya had incorporated this technology into their systems by the time of writing these research findings.

### **5.2.3 Achievement Of Operational Performance Goals**

In the overall analysis the company was found to have a very good operational performance, none of the dimensions tested scored below the 50% mark. It was found that there are very good controls of inventory in the supply chain (a score of 95.4%) and this are made possible by the recent computerization of the processing and delivery of products. Improved response time to the correction of errors in ordering products also scored highly at 88.4%. This score was attributed to the recently launched online ordering system that counter checks orders placed by the dealers. The supply chain partners, though, need to address cash flow management within the supply chain (which scored lowest at 50%). The partners need to include more dealers within the tri-partite agreements with financial partners. The procurement of phone line sim cards was found to hold a lot of cash flow in the system affecting the operations of supply chain partners.



#### **5.2.4 Addressing The Critical Activities In The Supply Chain Design**

The respondents interviewed identified a diversified range of activities that pointed towards the prolific nature of Safaricom supply chain critical activities. These activities included Identifying the scratch card as functional product mentioned by 88.33% of questionnaire respondents and 80% of interviewees. 91.67% of questionnaire respondents and 96% of interviewees acknowledged M pesa and *Okoa Jahazi* products that give customers credit of up to 50 shillings to be paid back in three days as innovative products. Innovative products define critical activities in any supply chain. The change of focus from voice to data products by Safaricom pointed out another critical activity in the supply chain which is to continuously evolve the supply chain process.

Another critical activity in the supply chain of the company was developing efficiency in the supply chain, 76% of those interviewed mentioned efficiencies like the setting up 100 base stations powered by solar and wind energy in remote locations such as Lokichoggio, Kapenguria, Kakuma and Lodwar in Northern Kenya to increase network coverage in areas without electricity. The company scores poorly at 36.67% in terms of risk hedging activities. Safaricom, according to the respondents, was not very corporative in partnering with Zain on cross network tariffs and the matter had to be resolved by the CCK and resistance to share equipment in what is called infrastructure sharing, substantially reducing the costs of installation and leaving more money on the table for allocation into improving services, capacity building and innovation. Mass customization can be seen through the Mpesa software as critical activity and Agility in the supply chain, mentioned by 82.2% of questionnaire respondents and 92% of interviewees, was testified through the introduction of cross border money transfer services between Kenya, the UK and America. 88% of the respondents interviewed pointed out outsourcing activities within the supply chain.

#### **5.2.5: Impact Of Supply Chain Management Practices On Performance**

The comparisons of results from adoption of supply chain management practices and operational performance dimensions revealed a direct relationship between the two Seven performance dimensions measured scored between 75% and 100% which compares

exactly with the adoption rate of seven conventional supply chain management practices adopted in the organization whose adoption rates scored between 75% and 100%.

### **5.3 Conclusion**

It was observed that there exists very strong supply chain management practices in Safaricom and there was evidence of superior operational performance within the supply chain. The performance dimensions of flexibility, service, cost, quality as well as innovation are well taken care of and contribute immensely towards a good supply chain management practice in the wireless telecommunication industry and specifically within Safaricom Limited and its partners.

While the findings give the company a good standing in terms of superior operational performance, it should be noted that many supply chain partners in this wireless industry suggest that more needs to be done to performance manage the supply chain for sustainable operational performance within the supply chain. It was also observed that while there exists a more seamless organization early in the supply chain i.e. between Equipment suppliers, DHL and Safaricom, there is relatively lesser, although still impressive, seamless organization down the supply chain and especially between managing the large number of Safaricom authorized dealers and Safaricom limited.

### **5.4 Recommendations**

The following are recommendations based on the results and findings of the study. Safaricom needs to consider improving dealer education especially after expanding the dealer network to cater for the needs of the growing market. The company needs to make additional investments to cater for the growing number of dealer in the network. Safaricom also needs to work with players in the industry to risk hedge its supply chain practices as there exists an opportunity here to share infrastructure and earn some extra revenue in the process.

From the findings, it was also evident that the company needs to pay attention to the newer dealers who have recently joined the supply chain. The company scored poorly in terms of cash flow management in the supply chain and this was mostly attributed to newer dealers not being incorporated in the tri-partite agreements between Safaricom, financial partners and dealers. Performance management of the chain also needs to be addressed. The company needs to institute performance measurement practices that will appraise the performance of the supply chain and recommend new ideas and innovations as well as manage the existing ideas in the supply chain.

Lastly, it is recommended that Safaricom, as well as all other partners in the chain, should take seriously issues relating to supply chain management practices and should emphasize the adoption of conventional as well as cutting edge supply chain management practices. This is because the study has shown that there is a direct relationship between the adoption of supply chain management practices and the companies operational performance.

### **5.5 Limitations Of The Study**

The study focused on interviewing senior managers at Safaricom and other supply chain partners of the company. The respondents being busy professionals, it was very hard to convince them to take part in the questionnaires and some actually declined taking part in the study. Another limitation of the study was that Kenya has no Original Equipment Manufacturers (OEM) of mobile phones and many other wireless products yet the OEM form a crucial part of the Safaricom supply chain. It was therefore not possible for the researcher to collect primary data for analysis. Data for OEM was mostly collected from secondary sources.

### **5.6 Suggestion For Further Research**

Evidence of reverse logistics practiced in Hong Kong wireless telecommunication industry was discussed in the literature review in this study. But during the research findings there was no evidence of any reverse logistics activities employed by the company to make its supply chain more viable and to improve company performance. Future research on supply chain management in wireless organization can focus on how

sustainable reverse logistics can be developed within the Kenyan wireless telecommunication industry.

Another area of emerging research pointed out strongly by the respondents was the need for a performance management system instituted in the Safaricom supply chain. This is in order to sustain the good ideas and innovations that are constantly being added to the supply chain. In future, research can focus on how performance management can be instituted within the Safaricom supply chain and suggest sustainable ways of making sure that the performance management techniques will continuously appraise and improve the supply chain.

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## APPENDICES

### Appendix 1: Questionnaire

This questionnaire seeks information on Safaricom Supply Chain partners in their daily operations. The information is intended for academic purposes only and will not be divulged to any other person.

Please complete ALL sections of this document. All questions are inter-related and are very important to the study.

#### SECTION A. BIODATA.

1. Name (Optional).....
2. Gender,  Male  Female.
3. Please tick age bracket which you fall in.  
 Below 25  26-35  36-45  46-50  51 and above.
4. What is the highest level of education you have attended?

Primary Education.	
Secondary Education.	
College.	
University Degree.	
Doctorate Degree (Phd).	
Other Specify	

5. How long have been employed in/operating your organization.
  - a) Below 2 years
  - b) Between 2 years and 5 years
  - c) Over 5 years

6 What category of supply chain partner is your organization involved with Safaricom?

- a) Full Safaricom Dealer (Airtime,Data,Mpesa). [ ]
- b) Airtime dealer only [ ]
- c) Data dealer only [ ]
- d) Mpesa dealer only [ ]
- f) Equipment supplier [ ]
- g) Contracted business [ ]
- h) Outsourced business supplier [ ]
- e) Any other combination (please specify).....

7. How many branches/shops do you have.

- a) 0 – 5
- b) 6- 10
- c) 11-15
- d) 15-20
- f) Over 20

**SECTION B: CHALLENGES FACED IN THE SUPPLY CHAIN.**

Please indicate the level of agreement or disagreement with the following statements (using the following key: 1=strongly disagree, 2=disagree,3=cannot answer,4=Agree,5=strongly agree.)

**Part one.**

- 1. The cost of distributing products to your branches is too high [ ]
- 2. Deliveries of stocks from Safaricom is efficient [ ]
- 3. Ordering of stocks is fully computerized [ ]
- 5. Security of stocks while in transit from the principle can be easily compromised [ ]
- 6. Inventory problems have been the major cause of erosion of market share to the competition [ ]
- 7. Availability of Safaricom products in the market is the major factor to Safaricom's maintaining and defending its market share [ ]

**Part two.**

8. The following statements describe possible challenges faced in your supply chain with regards to telecommunication products. Please indicate if the problem exists in **your supply chain** and if it also exists in **your organization**.

<b>Problem.</b>	<b>Please tick if problem exist in the your supply chain.</b>	<b>Please tick if problem problem has directly affected your organization.</b>
Supply Shortages		
Poor communication in the supply chain.		
Competition for stocks.		
Obsolete technology		
Obsolete equipment.		
Lack of flexibility among partners in the chain.		
Customer complaints.		
Lack of performance measurement in the supply chain		

**SECTION C: OPERATIONAL PERFORMANCE OF THE SUPPLY CHAIN.**

9. How do you rate the performance of your supply chain with regards to the parameters listed below? (Please use the following guide in your rating: [1].Very poor. [ 2]. Poor, [3].Good, [ 4].Very good, [5] Excellent.)

Activity	5	4	3	2	1
Order processing					
Information dissemination					
Packaging					
Warehousing					
Inventory control					
Security of stocks					
Order fulfillment					
Flexibility of ordering					
Cash flow management					
Accuracy of orders delivered					
Cost of procurement process					
Quality of service.					
Quality of products.					
Timeliness of innovations of products					
Timeliness of correction of errors					
Timeliness of delivery					

**SECTION C: SUPPLY CHAIN STRATEGIES ADOPTED.**

**Part one.**

In answering questions in this section you are given scale 1-5  
(With 5 - a very large extent, 4 – large extent, 3 - some extent, 2-small extent,1- no extent.)

10. To what extent do you think your supplier adopts the following strategies in the process of supplying goods to your dealership? Please tick.

	5	4	3	2	1
Focus on the customer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Efficient communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incorporate technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adapt to changing realities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dealer education of supply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Controlling trade offs of cost And service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evaluation of SCM strategies Formulated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Part two ;**

Have the following objectives been achieved in the design of your supply chain strategy? Please indicate by ticking yes, no or ongoing. Please Tick.

<b>Objectives.</b>	<b>Yes</b>	<b>No</b>	<b>Ongoing.</b>
Sharing of forecasts in the chain	[     ]	[     ]	[     ]
Ability to determine Status of orders anywhere in the Supply chain	[     ]	[     ]	[     ]
Easy access of inventory Data at any point in the chain.	[     ]	[     ]	[     ]
Seamless flow of Information in the chain.	[     ]	[     ]	[     ]
All players can easily detect And respond to unplanned events	[     ]	[     ]	[     ]
Incorporation of technology In the supply chain	[     ]	[     ]	[     ]

Thank you.



**Appendix 2: Interview Guide**

NAME OR ORGANIZATION .....

1. Position held in the organization.....

2. Number of years worked in the organization.

a) Over 3 years [ ]

b) Between 1 and 2 years [ ]

c) Less than 1 year [ ]

3. Who are your major supply chain partners?

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4. Which supply chain partner do you consider the most important partner in the chain and why?

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5. In your opinion, what objectives have been achieved by your organization in designing its supply chain?

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6. State the major supply chain strategies adopted by your organization.

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7. State major changes in your distribution systems in the recent past in your organization.

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8. State if each of the following critical activities exists in your supply chain giving examples.

- Identifying functional products in the chain.
- Developing innovative products.
- Establishing stability in the chain.
- Creating efficiency in the supply chain.
- Risk hedging the supply chain
- Developing agile supply chains.
- Coping with demand and supply uncertainty.

9. What were the major challenges faced in effecting the changes in the distribution systems.

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10. What measures does your organization take to minimize risks while distributing its products in the market place?

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11. How is your organization prepared to handle demand/supply changes in the market?

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12. State the importance of the following factors in deciding the need to change the way operations manage the supply chain in your organization.

Where 5-very important, 4-important, 3-least important, 2-not important 1-cannot answer.

- Customer complaints of lack of products [ ]
- Top management interventions [ ]
- Trade offs of cost and service [ ]
- Communication between supply chain partners [ ]
- Need for customization [ ]
- Adaptation to changing realities in the environment [ ]

13. What lessons from the external environment has your organization adopted to improve the current supply chain practices.

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Thank you.

**Appendix 3: Letter of Introduction**

MUKASA VICTOR MUKIHWANA,  
P.O BOX 2898 00200.  
NAIROBI.  
Date.....

THE MANAGER,  
SAFARICOM DEALER- [NAME ATTACHED]

Dear Madam/Sir,  
**RE: LETTER OF INTRODUCTION.**

I am an MBA student at the University of Nairobi specializing in the area of Operations Management. I am currently conducting a research as part of my requirement in fulfillment of my degree program at the University and would kindly wish to seek permission to conduct interviews and give questionnaires to members of your organization. The data gathered from your organization will be confidential.

Your acceptance will be highly appreciated and will go a long way in adding value to my studies as well as your organization.

Yours Faithfully,

Victor Mukasa Mukhwana.