

**OPERATIONS MANAGEMENT PRACTICES AND  
PERFORMANCE OF TELECOMMUNICATIONS FIRMS  
IN KENYA**

**BY  
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**A RESEARCH PROJECT SUBMITTED IN PARTIAL  
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## DECLARATION

This research project is my original work and has not been presented for examination to any other university.

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## **DEDICATION**

This work is dedicated to the Almighty God and to my family for their love, patience, motivation, support and understanding towards successful completion of this course.

## **ABSTRACT**

The purpose of the study was to investigate the effect of operations management practices on the performance of telecommunication firms in Kenya. The specific objectives were to: determine whether there is an effect of design operations management practices on performance of telecommunication firms in Kenya, find out whether operations management practices affects the performance of telecommunications firms in Kenya, and establish the relationship between systems operations management practices on performance of telecommunication companies in Kenya. The research design used in the study was a survey design. The target population comprised firms in the Telecommunications industry in Kenya namely: Safaricom Limited, Airtel Kenya, Orange and Essar telecom which operated under the brand name Yu Mobile, Equitel Limited, Jamii Telecom, Sema mobile services, Zuku and Liquid Telecom. A census survey was conducted since the number of firms was small. The study sought to collect primary as well as secondary data using a structured questionnaire instrument. Supplementary information was obtained from relevant publications and websites of these firms. Descriptive statistics such as mean scores, standard deviation, frequency distributions and percentages were used to analyze data in the study. In order to investigate the relationship between the dependent and independent variables, the study conducted a multiple regression analysis. The results of the study revealed that majority of the respondents in the organizations studied (76.9%) were in supervisory positions. An analysis of the firms indicated that they all had an operations management department in place as shown by the 100% of the respondents who indicated that there existed an operations management department in their companies. From the study findings, it was established that there was a significant effect of the design operations management practices on the performance of the telecommunication firms in Kenya. The companies should invest more on design improvement strategies in order to spur their organizational performance. The study further established that there was a significant effect of the operations management practices adopted by the telecommunication firms in Kenya on their performance. The firms should therefore invest on the quality improvement of their products and services. On the firms' competitive strategies, there is need to consider their customers concentration in choosing the location of their facilities. This is aimed at reducing their operating costs leading to an increase in their financial performance. The results of the study also revealed that there was no significant effect of systems operations management practices on the performance of the telecommunication firms. However, there was a positive relationship between the systems operations practices and the performance of the firms, hence, there is need to pay attention to the maintenance and enhance inspection of products and service delivery. Other vital areas of operations management practices that needs due attention are supply chain management practices, scheduling practices and inventory management practices. The improvement on the areas stated is expected to increase the performance of telecommunication firms in Kenya. The study recommends that operations managers should consider utilization and restructuring of operations management policies. Finally, it is recommended that firms consider offering more capacity development opportunities to their employees through mentoring, coaching, training in order to enhance operations efficiency.

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# CHAPTER ONE: INTRODUCTION

## 1.1 Background

Nowadays, organizations conduct their business under highly dynamic environments, faced by scarcity of key resources and uncertainties in attracting, diversifying and uphold the technology trend in business opportunities. Demand has highly evolved to where the customer what is supplied to the market and firms basically respond to customer needs. Technology also commands the products and services released to the market. Firms must carefully optimize their internal resources to sustain a competitive advantage. To achieve the set standards, there is a need of developing quality control measures and systems that provide better feedback (Battistoni, 2013.)

With increased competition in industries including the service industry, operators have turned to bundled and converged services to improve their market positions. De Melo (2000) found that the ability of operators and their stakeholders to rapidly seize new business opportunities, anticipate customer demands in line with their preferences, and a quick turnaround towards flexibility in operational design, policies and predict future trends for demand in time (Economic survey, 2010.)

To accomplish this goal, operational design and functions of management play a key role in the telecommunication industry. Continuous training of employees on current consumer needs, provision of resources and relationships with suppliers and stakeholders will contribute towards maximizing returns and cost (Battistoni, 2013.)

The free entry to markets has seen increase in the number of competitors coupled with the high value of relationship patterns pushes telecommunication firms towards new

learning models. This is because telecommunication firms are frequently interacting with their customers, partners and other stakeholders (KPI's for Mobile Telecom Operators, 2010). The service industry including telecommunications sector is becoming dominant on customer relationship. Customer satisfaction has become critical. A global solution is required due to the reduced geographical gap among customers as a result of improved technology. Products have become universal therefore customers are likely to from one firm to another is dissatisfied.

### **1.1.1 Operations Management Practices**

Operations management is a management function concerned with executing, design and control of the formulation of product and service strategies. This has an obligation to ensure quality is achieved by economical use of resources and value for money realized through meeting customer demand and requirements. It is concerned with operations that convert resources (in the form of human force and materials) into desired good and services (Retrieved September 2016, from [www.iomnet.org.uk](http://www.iomnet.org.uk).)

Operations management is now a multidisciplinary functional area in a company, along with finance and marketing. It ensures that materials and labor, or any other input, is used in the most effective and efficient way possible within an organization – thus maximizing the output. Pearson (2010) observed that operations managers are accountable to all the activities in the organization which contribute to ensure smooth efficient service delivery. However, the particular nature of the operations functions responsibilities vary and will, to some extent, depend on strategic functions of an organization including; strategic, tactic and operational functions. Operations

management functions concern the micro environment for performance and decision making within an organization.

Operations management practices are internal factors that contribute to competence development; therefore, they can offer competitive advantages for firms (Pisano, 1996). Operations management practices refer to procedures or methodological solutions which are carried out in an organization through quality and optimization of scarce resources to produce outputs (Pearson, 2010). Operations management practices are geared towards understanding the customers' needs, measure customer satisfaction and use the information to create new and improved goods or services. Building quality into goods, services and processes and continually improving them to reduce errors, defects and waste; and using information about customers, goods/services, operations, suppliers, and employees to make better decisions. The decisions made in operations management translate to operations management practices that perform transformational roles to increase customer value.

Russel (2007) posited that operations practices are more than planning and controlling. It entails taking full advantage of available resources, time and decision making processes. There are many undertakings that are interdependent and incorporated in operations management to attain the desired levels of efficiency and effectiveness depending on how well these factors are organized. These operations management practices include product and service design, process design, facility layout, inventory control, planning and control, people and job design, facilities improvements, organization for quality among others. Plant facilities are essential in delivering goods and services to consumers. Best process or set of processes have to

be selected from the existing ones. Sound scheduling three programs put in place will facilitate the efforts of the other practices in driving the organization to achieve its goals. Skilled manpower means that right decisions will be made to produce products and services that meet the consumer's needs (Byegon, 2015).

### **1.1.2 Organizational Performance**

Organizational performance is the evaluation of a firm's outcomes against short and long term plans. Paramount success is achieved when all functions of an organization work together to achieve higher results as measured by the value delivered to customers. Sustainability through financial and nonfinancial aspects have been posing a great challenge for organizations in gaining market share. Lebens (2006) organizational success collectively as cost of capital, capacity and systems metrics which provide positive and negative feedback to management for market positioning.

Performance measurement was previously recognized by operations design, control and feedback circuit involving recorded information and solutions provided in daily activities which are aligned to customer needs in shaping technological change and strategy implementation (Simons, 1990). Kaplan and Norton (1987) explains performance from a financial perspective, whereby profit is viewed as excess of cost of capital. Generally, performance management becomes a core operation in companies in market positioning while other management functions are derived from its indicators. This means that performance measurement is dependent on other systems for it to work effectively. Profits alone without an analysis for value for money may not bring out the actual performance picture.

Within service industry, four metrics including customer satisfaction, financial, market share and shareholder value are used in measuring performance. In order remain competitive in the contemporary dynamic and unpredictable environment, companies must identify their capabilities and establish a position in the market, have clear objectives and direction. Establishment of standard measurement units in various lines of operations within an organization will collectively improve the quality of a firm's productivity. Continuous evaluation and improvement of the standard measures, quality procedures and capacity building of human resources will see an organization improve its performance (Neely, 2002).

The performance measurement in telecommunications industry will focus on; revenue, operational efficiency, market share and quality of service as key indicators of performance in the industry. While the performance perspective according to (Neely, 2002) is viewed as an outcome of the finished goods or services and how it positions a firm in the market as compared to its competitors. However, performance measurement systems should be applied in every production stage as well as processes within an organization. Integrating performance models with processes will refine the quality throughout all levels and provide timely response to actions to be taken well in advance to control wastage resources are focused towards the future of an organization. Therefore, there is need for companies maximize on strategic management decisions and extend design performance systems by department or small units into operational functions (Kaplan and Norton, 2001). Goals and objectives at departmental level are easy to tackle because of quick turnaround time in decision making and familiarity by employee as it relevant to their jobs.

### **1.1.3 Telecommunication Industry in Kenya**

Mobile telephone sector in Kenya emerged from a system where the country had full control of the telecommunications parastatal, Kenya Posts and Telecommunications Corporation (KP&TC) which was a pure monopoly. In 1998, the Kenya Telecommunications Act proposed by the Communication Commission of Kenya (CCK) enabling CCK to set up Telkom Kenya in 1999 was passed by Parliament. Mobile telephone services in Kenya started in the year 2000 when both Kencell (later renamed Celtel in 2004 and Zain in 2008 and now Airtel) and Safaricom Limited were launched ([www.cck.go.ke](http://www.cck.go.ke)). Today, the players in the Telecommunications industry in Kenya include; Safaricom Limited, Airtel Kenya, Equitel Limited and, Orange, operated by Telkom Kenya, Sema mobile services, Jamii Telecom, Zuku and Liquid Telecom Kenya. The firms offer a range of services including mobile telephony services, internet infrastructure and services and money transfers to the Kenyan population and beyond its borders. Essar Telecom Kenya Limited exited the market in January 2015 and operates as a subsidiary of Safaricom Limited ([www.yu.co.ke](http://www.yu.co.ke)).

In Kenya, companies and firms have embraced the concept of operations management to some extent. According to Chelang'at (2010), most commercial banks in Kenya implemented the lean six sigma operations to increase efficiency, enhance operational excellence and to reduce costs. She found out that most commercial banks had the following implemented operations management practices in strategic, tactical and operational decision levels. The commercial banks coupled the management practices with total quality management, technology and customer relationships in order to improve their performance.

## **1.2 Research Problem**

The issue of organizational performance has been central in sustaining businesses in dynamic technological innovations, political and economic factors and customer demands. Organizations employ various practices in order to achieve high efficiency which results into their performance. According to the Global Mobile Operators report (2016), the communications sector has emerged as a market leader in driving economies in various regions in the world and has created massive competition in mobile virtual network operators. Innovations within the industry has become fundamental globally in both technology, communication devices and services and consumers are ready to spend and maintain the technology advancement. Other systems like e-business and online services have influenced upgrade in technology by individuals and firms.

A study on global telecommunications conducted by Ernest &Young (2015) found that the telecom sectors rapidly changing and the change is driven by customer satisfaction which takes large share in the strategic decisions. Mobile operators heavily rely on customers spending, not the regular way but in larger numbers in order to meet operating costs followed perpetual sustainability. Service quality has not been left out of ranking of strategic priorities. The efficiency in operating processes, expertise tapping, innovations and marketing strategies and monitoring of competitors play a key role (EYG Ltd, 2015).

Regionally, Africa has observed a highest growth in telecommunications industry. A growth of 22 percent has been recorded between 2013 and 2015 and an increase of 16 percent is projected by 2018 as predicted by Informa Telecoms & Media (2013). In



Kenya, the telecommunication industry is deemed to be one of the economic growth drivers that will transform the country to achieve vision 2030. During the period 1st January to 31st March 2016, a positive growth was recorded and the trend is expected to raise in registering new subscribers and expanding the geographical reach for networks and infrastructure ([www.ca.go.ke](http://www.ca.go.ke)).

Inform UK (2013) found that developing countries are fast catching up with global market leaders in the invention of mobile money transfer services product by Kenya.

In past few years, new service providers have entered the local market with products (cheaper handsets and laptops) and discounts on tariffs to attract and retain customers. Today value addition has become important to create customer satisfaction, offer quality services and keep market shares. To achieve this, it involves employing operations management practices in respect to competition.

Past studies that have been carried out on similar topics. For example, Battistoni (2013) carried out a study on the SMEs that operate in the manufacturing sector. His findings were that management decisions had a positive effect on performance. He pointed out the value of this positive association to be carefully taken into account by management, in order to implement best practices that can affect revenue and internal efficiency. This offers a clear input for the diffusion of operations management culture also in business clusters and every time new policies have to be introduced. Kushwaha (2013) carried a study on operational performance through Supply Chain Management Practices in India paint industry. He concluded that, companies that adopted operations management practices had a significant performance.

Lwiki (2013) in his study, concluded that there was generally more than average positive relationship between operational decisions and performance in sugar companies.

Sharif (2010) found that Safaricom's M-pesa service employed operations strategies to succeed in the mobile money transfer business. He concluded that the company has aptly employed innovation strategy as an operations strategy in order to keep M-Pesa ahead of competition as well as to make the service more attractive to various types of clientele. Kituu (2013) in studying strategic planning practices by firms in the telecommunication sector in Kenya concluded that all the firms in the telecommunication industry in Kenya should adopt strategic management so as to gain competitiveness in the sector and also so as to gain efficiency in operations and hence improve their profitability. Similarly, Wanjiku (2015) concluded that operation management strategies affect performance of the firms. Adoption of superior operations management result in increased profits in the mobile company, elevated customer base, influence the effectiveness of the firm's practices and leads to reduced operations costs of the mobile company.

The studies enumerated above point at several existing gaps. The studies available on operations management practices and performance on telecommunications companies operating in Kenya are mainly on single practices but the study looked at the operations management practices in totality and organizational performance. This study therefore was guided by the following study question: what operations management practices have been adopted and their effect in driving performance by firms in the telecommunications business venture in Kenya?

### **1.3 Objectives of the Study**

The general objective of the study was to investigate the effect of operations management practices on the performance of telecommunication firms in Kenya.

The specific objectives of this study were:

- i. To determine whether there is an effect of design operations management practices on performance of telecommunication firms in Kenya.
- ii. To find out whether operations management practices affects the performance of telecommunications firms in Kenya.
- iii. To establish the relationship between systems operations management practices on performance of telecommunication companies in Kenya.

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

The study is of great significance to various segments in society. It is a basic research designed to impart awareness of the telecommunications industry, provide understanding of the operations management practices and entity's performance by telecommunications companies in Kenya. The academia and research institutions in the area of operations management will gain an insight on the various operations management practices applied by telecommunications companies in Kenya as well as their influence in performance. This will enable the academia to undertake further research on other aspects of operations management practices.

Finally, the results of this study will also inform other firms in the service industry operational management practices that may be required in the business environment to enable growth while maintaining efficiency and effectiveness of businesses.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter will discuss related literature on the discipline of operational management decisions and organizational performance as presented by various researchers and scholars. The study also reviews the theoretical foundations on operations management practices. The materials are drawn from journals and papers relevant to objectives and theme of the study.

### **2.2 Theoretical Foundation**

The study is founded on two theories including the open systems and the resource based view theory all of which explain how organizations need to interact with the environment to build a competitive advantage in their industry.

#### **2.2.1 Open Systems Theory**

Open systems theory was introduced by a famous biologist known as Ludwig von Bertalanffy. The theory became relevant in various subjects instantaneously. The theory views in a perspective of classified and as free existing. Open systems tend to have some resemblance of clusters and levels. It assumes that organizations exist in environments with large and small subsystems which receives inputs and transforms then into outputs. The outputs comprise inputs into other subsystems within an organization applying in various activities (Hatch, 1997). The subsystems are represented by patterns of activities rather than subdivisions in an organization. Subsystems are dependent of each other and are closely knit and tend to be tighter than elements between subsystems becomes stronger elements. The connections form discrete competitive benefit in wholesome (Gortner, Mahler and Nicholson, 1997).

Organizations are set up in a uniform platform but with each plying in a unique manner maximizes the opportunities in the environment as well as navigating through unique challenges in order to survive. The environment is common but some organizations will grow while others decline (Hatch, 1997). Environmental factors that affect open systems can be described as macro including political, social, technological and legal factors. Others comprise of suppliers, distributors, government agencies, and competitors with which a business enterprise work together.

This theory concludes that in order for organizations to remain competitive in the dynamic environment, there is need to formulate and continuously review decision making strategies, mission and objectives that build towards meeting customers' demand and ensure satisfaction. Customers remain the target in the market and their loyalty will contribute to a high market share thus resilient than other industry competitors.

### **2.2.2 Resource - Based View Theory**

This theory sees organizations from a perspective a firm possess in terms of resources and capabilities and the value they generate in a sustainable way (Barney, 1991). The resources and capabilities are seen as the inputs and the team to coordinate the transformation respectively (Prahalad, 1996). The RBV defines the relationship between the resources and capacities and intangible assets because each organization adopts a specific was of utilization attain sustainability and competitive advantage (Barney, 1991). The resources are considered as distinctive to what the organization

can control but change from time to time. Porter (1991) argues that organizations differ on strategy of resource management.

The approach of the RBV is that organizations will identify their resources in various forms (Wernerfelt, 1984). The organizations have equal access to resources but execution tactics differentiate them. The unique strategy applied in utilizing resources and capabilities. Barney (1991) concludes that competition would not exist if all firms used same approach in resource management. Companies in the same sector compete in formulating successful strategy which attribute towards certain different levels of efficiency. Therefore, an organization is able to attain desired performance as a result of the efficiency levels in cost reduction and cost of capital invested which describes performance differences in organizations.

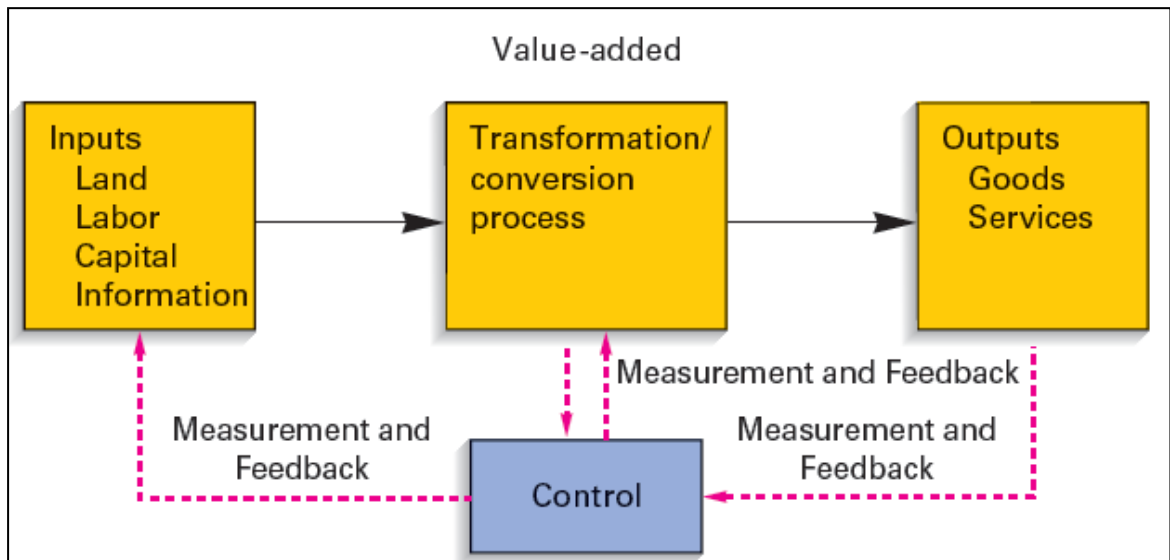
### **2.3 Operations Management Practices**

Heizer and Render (2006) stated that differentiation, cost reduction, and feedback can be achieved when managers use 10 areas of operations management for effective decision making. These are known as operations decisions in wholesome. The 10 decisions areas of operations management that maintain the mission and implement management strategies are discussed.

Product and service design; as explained by Heizer (2006), determines the expected outcome from input conversion through to outputs. Capacity, cost of production and quality requirements are determined at this level. Operations practices in manufacturing and service industry have distinct characteristics in tangible or intangible features. Stevenson (2008) argued that appropriate outputs are achieved and that a random quality check would be conducted during production process.

Results from the random checks will be used to develop appropriate feedback measures. Figure 2.1 below illustrates the transformation process.

**Figure 2.1: Transformation Process**



*Source: Author (2016)*

Process and capacity design; conversion processes involve a combination of volume with variety in meeting market demand. Decision points involves the selection of processes, technology required, systems, expertise, quality and maintenance which are determinants of the basic cost structure. Services operation decision much simpler because they consist of processes that involve the customer directly and investment in expertise is vital. Maintaining right quantities of products will provide a steady supply in the market and steady sales turnover and customers (Heizer et al., 2006).

Layout design; includes site and office design in relation to organization of people, machines, warehouses, walkways for safety and marked service zones (Russell, 2007). Smooth flow of materials type of technology used, availability of workforce, inventory scheduling and business financial investment will determine the set up. In provision of amenities, facility design is needed dependent of the nature of service required. Work and job design; human capacity in coordinating systems and rocesses

and decision making is critical in an organization. Decision areas point out general and specific practices within an organization that employment terms are anchored in an easy manner, improve knowledge and nurture and develop employees. The elements of work and job design are behavioral features which affect workers motivation and physical effects of work such as interaction with equipment and work environment (Ted, 2013).

Facility location; according to Henzer (2004) location is assumed to be an area where management have set up as an office. This should be strategically placed for easy access and for attracting global customers. Where physical goods are involved, the selection of the location will be determined by availability of workforce, raw materials, technology, and market and government policy. For services which are offered directly to clients, centers of service should be positioned close to consumer and consider transport networks and services that are affordable.

Quality management; market preferences and trends change over very short periods of time. To keep abreast with the customers, firms require flexible processes and systems to produce products and services that meets the standards. Customer's loyalty is swayed with quality and durability of products more than the cost. In service industry, quality involves early prediction of customer demand and preferences, completeness, consistency, durability and convenience and feedback. UNIDO (2010) says there is a variation in Good Manufacturing Practice (GMP) among local firms. Some firms have made investments to meet these standards while others are deterred from making upgrades through lack of finance or technical assistance.

Supply Chain Management; decisions that have to take place on how to move raw materials from the supplier to the manufacturer and finally the delivery of finished



products to the customer. The decisions will include products to be produced, supplier of the product and cost of delivery to the customer (Henzer, 2004). This mainly apply in inventory control decisions to ensure the demand is met at the right time for customer satisfaction, and reduce holding cost, whereas availability of raw materials and adequate capacity will ensure continuous production. Holding of inventory should be minimized to reduce cases of damage due to congestion of poor storage. This mainly applies in the productions of good than to services (Henzer, 2004).

Scheduling; this deals with efficient ways of allocating, controlling and managing human resources, goods and materials to ensure efficient production of finished products. Systematic allocation applies more in manufacturing sector as compared to service industry, attention is channeled to customers in the provision of services, therefore, adequate staffing and clear direction of where services are provided on a timely way is necessary (Henzer, 2004).

Maintenance; for continuous production and service delivery, decisions must be made regarding the desired level of system. The system should be stable and reliable at all times otherwise the companies risk losing customers to competitors. Preventive maintenance consists of maintenance activities performed before an equipment breakdown, with the intent of keeping it operating. Corrective maintenance consists of efforts to restore facilities and equipment to satisfactory functioning condition after a breakdown. (Heizer & Render, 2006).

## **2.4 Operations Management Practices and Performance**

UN Paper (2003) performance management models consider financial, organizational capacity, product quality, innovations and how all these are integrated in systems and processes. Ted James (2011) explains further that reconciliation between the

performance measure metrics and operations management objectives is necessary to satisfying the market requirements by developing desirable operational performance objectives, and taking decisions on the distribution of resources which affect the activities in operations. Through market- based method to operations strategy an organization makes a decision the customers and the market that relates to their target. The market position a firm is able to attract and retains customers through its efficiency better than its competitors.

## **2.5 Empirical Studies**

Battistoni (2013) analyzed Italian SMEs, he that operations management practices had a positive influence on a firm's performance. These have a positive association to production and supply chain management in order to implement best practices that an affect profits, cost reduction and internal efficiency. Furthermore, he noted that size of companies does not matter in implementing operations management practices. Oyedijo (2012) studied strategic swiftness and competitive performance in the Nigerian telecommunication industry. The study shows a substantial relationship between strategic agility and competitive performance. It further revealed that firms that are flexible with speed outperform those with low strategic agility. This study provides important effects for the management of telecommunication firms and other service industry firms in Nigeria. In order to increase competitive edge, firms need to exhibit a high level of commitment towards strategic agility.

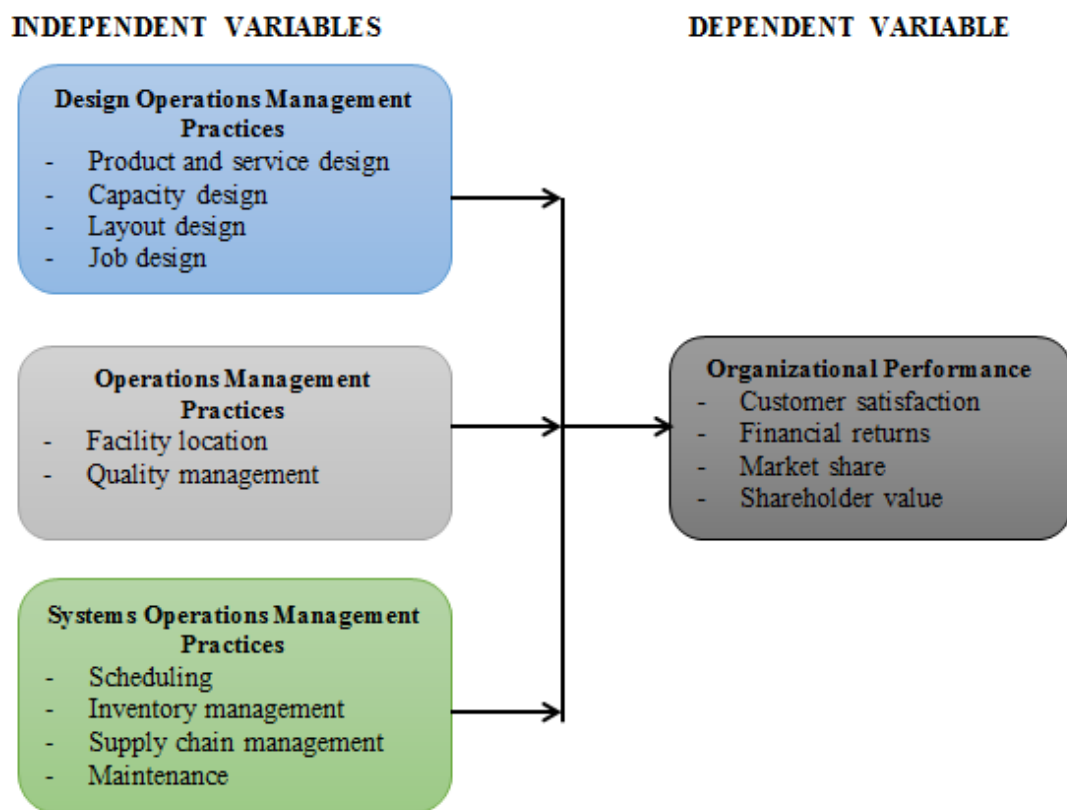
Kanorio (2014) conducted a study total quality management practices and operational performance Kenya's banking sector. She concluded that implementation of quality management systems has increased bank profitability, enhanced sales, increased bank competitiveness and resulted in acquisition of bigger market share, enhanced service

delivery in the bank, ensured effective waste education in operations, improved operation efficiency thus reducing operation costs and increased customer retention as a result of customer satisfaction. Wanjiku (2015) in her findings concluded that mobile telecommunication firms and other firms in other industries to adopt operations management strategies that are superior in their respective industries. The management should ensure that their firms are leaders in adoption of most efficient strategies. This will ensure that their firms are profitable and have superior products.

## 2.6 Conceptual Framework

The dependent represents performance and independent variables consist of operations management practices that tend to improve on efficiency and effectiveness that lead to growth and increase in profitability.

**Figure 1.2: Conceptual Framework**



*Source: Author (2016)*

## **2.7 Research Hypotheses**

From the above conceptual framework the following hypothesis was formulated and tested;

H0<sub>1</sub>: Operations management practices have a significant influence on the performance of telecommunication firms in Kenya

H0<sub>2</sub>: Design practices have a significant influence on the performance of telecommunication firms in Kenya

H0<sub>3</sub>: Operation management Practices have a significant influence on the performance of telecommunication firms in Kenya

H0<sub>4</sub>: Systems operations management practices have a significant influence on the performance of telecommunication firms in Kenya.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This section deals with the research methodology which refers to the choice that researchers make about cases to be studied. These include methodology used to carry out the survey, what informed the selection of the research design, why the selected population, the sampling method used, the data collection instrument, analysis and interpretation.

### **3.2 Research Design**

A survey design was used in this study. Survey involves data collection from different individuals from an entity. This provides independent opinions of an entity which is examined, tested and analyzed.

### **3.3 Population**

The target population for this study consist of firms operating in the Telecommunications industry in Kenya. These firms comprise: Safaricom Limited, Airtel Kenya, Orange and Essar telecom which operated under the brand name Yu Mobile, Equitel Limited, Jamii Telecom, Sema mobile services, Zuku and Liquid Telecom.

### **3.4 Sample Size**

A census survey was conducted since the number of firms is small. This is a method of gathering facts and recording of information from each unit in a population.

### **3.5 Data Collection**

Both primary and secondary data were collected in the study. A structure questionnaire was used in gathering primary information. Journals and papers provided supplementary information on service providers in telecommunications sector. The questionnaires comprised of two sections, these were section I and

Section II, with general information and specific questions addressing operations management practices used by these firms. This consisted of open ended and closed ended questions and adopted a 5 point Likert scale where question sought opinion rating.

### **3.6 Data Analysis**

The data collected was reviewed and cleaned for accuracy, completeness, consistency and uniformity. Thereafter, coding and tabulation before final analysis. The data was then coded and tabulation was done to enable the responses to be statistically analyzed. Descriptive statistics such as mean scores, standard deviation, frequency distributions and percentages were used in the study. To investigate the relationship between the dependent and independent variables, the study conducted a multiple regression analysis and the regression equation was of the form:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \epsilon$$

Where Y = Organization Performance

X<sub>1</sub> = Designs' operations management practices

X<sub>2</sub> = Operations' management practices

X<sub>3</sub> = Systems' operations management practices

$\epsilon$  = Error term

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

### **4.1 Introduction**

The study utilized three statistical checks; descriptive statistics, correlation analysis and multiple regression analysis. Descriptive analysis was performed to determine the distribution of data on study variables. Pearson correlation coefficient was used to determine the significance level of the study variables and how they are associated. Regression analysis was conducted to determine the predictive power of operations management practices on the performance of Telecommunication firms in Kenya.

### **4.2 General Information**

The sample size (n) was 20 and the observed responses were 13. This implies that 65% of the responses were captured in the analysis. This response rate was considered sufficient for data analysis. The sample profile of the respondents categorized on the basis of position held in the organization and whether the company under study had an operations management department was also examined. From the analysis, 76.9% of respondents were in supervisory positions and minority were in non-supervisory positions in the organizations studied.

An analysis of the firms under study indicates that all the firms had an operations management department in place. This implies that 100% of the respondents indicated that there existed an operations management department in their companies. This means that all the telecommunication firms under study embraced operations management practices in their service delivery.

### 4.3 Operations management practices

Respondents were asked to indicate on scale of 1 to 5 there (where 1-strongly disagree, 2-disagree, 3-neither agree nor disagree, 4-agree and 5-strongly agree) the extent to which the organization has adopted various operations management practices and the results are shown in Table 4.1.

**Table 4.1: Descriptive Statistics of Performance and Operations Management Practices**

<b>Quality Management</b>	<b>Mean</b>	<b>Standard deviation</b>
Company has a quality management system in place	4.9231	0.27735
Staff are continuously trained and educated on quality programs	4.9321	0.27735
Company welcomes and acts on customers' complaints	4.9231	0.27735
There is continuous improvement on handling of customers	5.0000	0.00000
Company relies on feedback from Communications Commission Authority on quality of its products	5.0000	0.00000
<b>Design of services</b>	<b>Mean</b>	<b>Standard deviation</b>
The services comply with the legal requirements	4.0385	0.13868
Provide services that are easily acceptable in the market	5.0000	0.00000
Provide services that are able to satisfy customers'	4.9231	0.27735
Minimizes service cost	4.8462	0.37553
Company follows keenly on what competitor has in the market	4.9231	0.27735
<b>Work flow and Job Design</b>	<b>Mean</b>	<b>Standard deviation</b>
Employees fully understand the goals, policies, and objectives of this organization	4.6923	0.48038
The organization has a reporting and communication structure	4.9231	0.27735
Employees have job descriptions	4.6923	0.48038
The organization provides continuous training of job and procedure	4.6923	0.48038
There is a system for collecting employees' opinions	4.6154	0.50637
Supervisors provide feedback to employees on periodic performance	4.6923	0.48038
There is a strong spirit of cooperation in the organization	4.7692	0.43853
Organization takes care of employee welfare	4.7692	0.43853
<b>Process and Capacity Design</b>	<b>Mean</b>	<b>Standard deviation</b>
Company does invest in long term systems for operations	4.8462	0.37553
Company is able to respond to changes in demand quickly	4.7692	0.43853
Company is able to forecast demand accurately	4.6154	0.65044
Company outsource work to other firms when demand is high	4.6923	0.48038



<b>Facility location</b>	<b>Mean</b>	<b>Standard deviation</b>
Location is close to customers	4.8462	0.37553
Distribution, transportation and other utilities are easily accessible	4.8462	0.37553
Affordable rent and Leasing costs	4.6923	0.48038
Labor easily available	4.8462	0.37553
<b>Maintenance</b>	<b>Mean</b>	<b>Standard deviation</b>
Maintenance services are done regularly	4.8462	0.37553
Maintenance services are done when there is less work or when equipment breaks down	4.8462	0.37553
Company undertakes regular inspection of its products and facilities	4.8462	0.37553
<b>Supply Chain Management</b>	<b>Mean</b>	<b>Standard deviation</b>
Suppliers operate as separate entities with their own goals	4.8462	0.37553
Company gathers feedback from distributors and customers on how to improve the systems	4.8462	0.37553
The company deals with a few prequalified suppliers	4.7692	0.43853
The company provides technical assistance to suppliers, distributors and customers	4.6923	0.48038
The company can locate and track movement of items	4.6923	0.48038
<b>Scheduling</b>	<b>Mean</b>	<b>Standard deviation</b>
Company maintains constant production and supply	4.6923	0.48038
Company hires more workers when demand increases	4.3846	0.65044
Increasing or decreasing working hours depending on demand	4.5385	0.51887
Employees work overtime more often to clear backlogs	4.5385	0.51887
<b>Inventory Management</b>	<b>Mean</b>	<b>Standard deviation</b>
Company uses computer software to manage its inventory	4.4615	0.66023
Company orders at specific times in the year	4.6923	0.48038
Company orders for goods randomly depending on demand	4.4615	0.51887
Cost determines the amount of goods to be ordered	4.4615	0.51887
Company considers discounts when ordering for goods	4.3846	0.65044
Orders are placed depending on customer demand	4.4615	0.51887
<b>Layout Strategy</b>	<b>Mean</b>	<b>Standard deviation</b>
Departments are divided based on similarity of duties	4.3846	0.65044
Divisions are grouped depending on products they deal with	4.8462	0.37553
Divisions operate according to their geographical locations	4.8462	0.37553
Designed for ease of future expansion and improvement	4.8462	0.37553
Properly utilize the space available	4.7692	0.43853

It is easy for employees to communicate with one another	4.7692	0.43853
To ensure safety of employees	4.7692	0.43853
<b>Performance indicators</b>	<b>Mean</b>	<b>Standard deviation</b>
How important is customer satisfaction offering as part of your organization's performance?	4.8462	0.37553
How important is profit offering as part of your organization's performance?	4.7692	0.43853
How important is market share offering as part of your organization's performance?	4.7692	0.43853
How important is shareholder value offering as part of your organization's performance?	4.7692	0.43853

*Source: Author (2016)*

From the standard deviation of design operations management practices had the lowest, meaning that most organizations consider quality of design of their products as key. The assumption tested in the study is showed that data had a normal distribution from the mean

#### **4.4 Relationship between Operations Management Practices and Performance**

The general objective of the study was to establish the relationship between operations management practices and performance of telecommunication industry in Kenya.

##### **4.4.1 Relationship between operations management practices and performance of telecommunication firms in Kenya**

The predicted model was presented using the linear regression model below.

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon \text{ where,}$$

Y is the organizational performance,  $X_1$  is the design operations management practices,  $X_2$  is the operations management practices,  $X_3$  is the systems operations management practices and  $\varepsilon$  is the error term of the regression model.  $\beta_1$ - $\beta_3$  are the coefficients of regression as generated by the model.

**Table 4.2: Overall Regression Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000 <sup>a</sup>	1.000	.999	.00818

a. Predictors: (Constant), Systems, Operations Management, Design

*Source: Author (2016)*

Table 4.2 shows the results of the empirical regression model. The coefficient of determination (R Square) provides an estimate of the proportion of variance of the dependent variable which is accounted for by the independent variables. The main purpose of the coefficient of determination is to predict future outcomes and trends on the basis of other related information. It provides a measure of how well future outcomes are likely to be predicted by the statistical regression model in a study. From the analysis results in Table 4.4, the coefficient of determination ( $R^2$ ) is 1.000. This means that the independent variables can explain 100% of the model used in the study. Table 4.3 below shows the results of the regression coefficients and their significance.

**Table 4.3: Coefficients of Performance with Design, Operations and Systems**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.747	.100		7.484	.000
	Design Operations Management Practices	-.870	.030	-.330	-29.327	.000
	Operations Management Practices	1.733	.015	1.228	112.814	.000
	Systems Operations Management Practices	-.013	.008	-.014	-1.547	.156

a. Dependent Variable: Performance

*Source: Author (2016)*

The regression coefficient for design operations management practice is -0.87. Operations management practices have a coefficient of +1.733. Systems operations management practices have a coefficient of -0.013. From the analysis, the p-values for design and operations management practices are 0.000 and 0.000 respectively. These values are <0.05 meaning that the coefficients are statistically significant at 5% level of significance. On the other hand, systems operations management practices have a p-value of 0.156 implying that the coefficient is not statistically significant at 5% level of significant. The coefficients can be summarized by the regression model below.

$$Y = 0.747 - 0.87X_1 + 1.733X_2 - 0.013X_3 + \epsilon \dots \dots \dots (2)$$

Table 4.4 below shows the results of the model Analysis of Variance (ANOVA) for the combined variables.

**Table 4.4: ANOVA of Systems, Design and Operations Management Practices**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.326	3	.442	6.609E3	.000 <sup>a</sup>
	Residual	.001	9	.000		
	Total	1.327	12			

a. Predictors: (Constant), Systems, Operations Management, Design

b. Dependent Variable: Performance

**Source: Author (2016)**

The ANOVA table shows that the F-test is 0.000 which has a significance of <0.05. This means that systems operations management practices, operations management practices and design operations management practices had a significant effect on organizational performance. The statistical significance of 0.000 implies that we reject the null hypothesis (H0<sub>1</sub>) at 95% confidence level, meaning that there was a

relationship between operations management practices and organizational performance. The  $R^2 = 1.000$  implies that the regression model provided a perfect fit.

Considering the general objective of the study which was to investigate the effect of operations management practices on the performance of telecommunication firms in Kenya, the study established that operations management practices considered had a significant influence on the organizational performance. This means that all the investments which the firms are undertaking to improve on design, operations and systems will affect the organizational performance. This is consistent with a study done by Kigo (2015) who found out that operation management strategies affect performance of the mobile telephone firms in Kenya. Adoption of superior operations management results in increased profits in the mobile company, elevated customer base, influence the effectiveness of the firm's practices and leads to reduced operations costs of the mobile company.

#### **4.4.2 Relationship between design operations management practices and organizational performance**

The model summary of design operations management practices and organizational performance in Table 4.5 was examined. The Durbin-Watson statistic was 1.717 which was approximately 2 and hence the residuals in the data set did not indicate any multicollinearity. The coefficient of determination ( $R^2$ ) was 0.338 implying that it provided a strong fit.

**Table 4.5: Model Summary of Design Operations Practices and Performance**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.581 <sup>a</sup>	.338	.277	.28269	1.717

a. Predictors: (Constant), Design Operation Management Practices

b. Dependent Variable: Organizational Performance

**Source: Author (2016)**

The coefficient of design operations management practices in table 4.6 confirms that design practices had a statistically significant coefficient of +1.532 with an associated p-value of 0.037 which is below 0.05. The study therefore rejected the null hypothesis at 95% confidence level. This means that there was a significant relationship between design operations management practices and performance. From the table, the regression equation on design operations management practices and performance can be summarized in equation 3 below.

$$Y = -2.702 + 1.532X_1 + \epsilon_1 \dots \dots \dots (3)$$

**Table 4.6: Coefficient of Design Operations Practices and Performance**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.702	3.197		-.845	.416
	Design Operations Management Practices	1.532	.647	.581	2.367	.037

a. Dependent Variable: Performance

**Source: Author (2016)**

The relationship between design operations management practices and organizational performance was examined by testing the third hypothesis (H0<sub>3</sub>).

H0<sub>3</sub>: Design operations management practices have no significant effect on organizational performance of telecommunication firms in Kenya.

A simple linear regression resulted in an ANOVA output and the results are presented in Table 4.7. The results were used to interpret the statistical significance of the regression model. The resulting F-value (5.605) had a probability of 0.037. Model 3 was therefore statistically significant (p-value <0.05) at 5% significance level in explaining the linear relationship between design operations management practices and performance.

**Table 4.7: ANOVA for Design Operations Management Practices and Performance**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.448	1	.448	5.605	.037 <sup>a</sup>
	Residual	.879	11	.080		
	Total	1.327	12			

a. Predictors: (Constant), Design

b. Dependent Variable: Performance

**Source: Author (2016)**

The objective was to determine whether there was an effect of design operations management practices on the performance of telecommunication companies in Kenya. The considerations made on the design were based on several dimensions. These were whether the firms' services were designed in compliance with the legal requirements of the country, easily accepted in the market and whether the companies keenly follow what the competitors in the market have in order to improve on the designs. Other factors considered were the workflow and job designs, process and capacity designs, and the layout strategies put in place. From the analysis of the data, the study found out that there was a significant relationship between design operations management practices and performance.

#### 4.4.3 Relationship between operations management practices and organizational performance

The second specific research objective was to investigate the relationship between operations management practices and organizational performance of telecommunication firms in Kenya. The regression model which related to operations management practices and performance was presented using the linear regression model in equation 4. The study also tested the relationship between operations management practices and performance by examining the third research hypothesis (H0<sub>3</sub>).

H0<sub>3</sub>: Operational management practices have no significant influence on organizational performance on the telecommunication firms in Kenya.

An examination of the model summary of operations management practices and performance in Table 4.8 indicated and R Square of 0.95. This implies that the regression model 1 has a very strong fit and can be relied on explaining the variables under study.

**Table 4.8: Model Summary for Operations Management Practices and Performance**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.975 <sup>a</sup>	.950	.945	.07776	1.775

a. Predictors: (Constant), Operations Management Practices

b. Dependent Variable: Performance

**Source: Author (2016)**

The coefficients of operations management practices and performance under model 1 in Table 4.9 shows a probability of 0.000 which is <0.05 hence statistically significant. The study therefore rejects the null hypothesis H0<sub>3</sub> at 95% confidence level. This means that there was a statistically significant relationship between



operations management practices and performance on a simple regression relationship.

**Table 4.9: Coefficients of Operations Management Practices and Performance**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-1.857	.466		-3.984	.002
Operations Management	1.375	.095	.975	14.438	.000

a. Dependent Variable: Performance

*Source: Author (2016)*

The model coefficient indicated in Table 4.9 shows a constant of -1.857 and an intercept of 1.375. This can be shown in equation 4 below.

$$Y = -1.857 + 1.375X_2 + \epsilon_2 \dots \dots \dots (4)$$

Where Y is the performance, X<sub>2</sub> is the operations management practices and ε<sub>2</sub> is the error term associated with the simple regression equation.

The resulting ANOVA output in Table 4.10 indicates an F-value of 208.47 with a p-value of 0.000. Model 1 was therefore significant (p-value <0.05) at 5% significance level in explaining the linear relationship between operations management practices and performance.

**Table 4.10: ANOVA of Operations Management Practices and Performance**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1.260	1	1.260	208.470	.000 <sup>a</sup>
Residual	.067	11	.006		
Total	1.327	12			

a. Predictors: (Constant), Operations Management Practices

b. Dependent Variable: Performance

*Source: Author (2016)*

The second specific objective was to investigate the relationship between operations management practices and performance of the telecommunication companies in Kenya. The factors considered in determination of the operations management practices were quality management strategies and facility location. This position is supported by Onyango (2010) who revealed that operations management practices are important in customer satisfaction hence improved performance.

#### 4.4.4 Relationship between systems operations management practices and performance

The third specific research objective was to establish the relationship between systems operations management practices and organizational performance. This association was tested by examining the fourth research hypothesis (H0<sub>4</sub>) stated below.

H0<sub>4</sub>: Systems operations management practices have no significant influence on organizational performance of telecommunication firms in Kenya.

The model summary of systems operations management practices and performance in Table 4.11 shows an R Square of 0.201 indicating that model 4 provided a weak fit.

**Table 4.11: Model Summary of Systems Operations Management Practices and Performance**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.449 <sup>a</sup>	.201	.129	.31042	2.144

a. Predictors: (Constant), Systems Operations Management Practices

b. Dependent Variable: Performance

*Source: Author (2016)*

An evaluation of the coefficients of systems operations management practices under model 5 in Table 4.12 shows that the associated p-value is 0.124 hence non-

significant. The study accepted the null hypothesis (H0<sub>4</sub>) at 95% confidence level. This implies that there was no statistically significant association between systems operations management practices and performance on a direct regression relationship.

**Table 4.12: Coefficients of Systems Operations Practices and Performance**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.942	1.159		2.538	.028
Systems	.420	.253	.449	1.665	.124

a. Dependent Variable: Performance

**Source: Author (2016)**

The results in Table 4.12 show that the model coefficient of systems operations management practices was +0.42 and a model constant of 2.942. This can be illustrated by the regression equation below.

$$Y = 2.942 + 0.42X_3 + \epsilon_3 \dots \dots \dots (5)$$

Where Y is the performance, X<sub>3</sub> is the systems operations management practices and ε<sub>3</sub> is error term associated with the model.

From the ANOVA results in Table 4.13, it was observed that the F-value was 2.771 with a probability of 0.124. The p-value is greater than 0.05 therefore model 5 was not statistically significant at 5% significance level in explaining the linear relationship between systems operations management practices and organizational performance.

**Table 4.13: ANOVA of Systems Operations Practices and Performance**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.267	1	.267	2.771	.124 <sup>a</sup>
	Residual	1.060	11	.096		
	Total	1.327	12			

a. Predictors: (Constant), Systems Operations Management Practices

b. Dependent Variable: Performance

**Source: Author (2016)**

The specific objective was to establish the relationship between systems operations management practices and performance of telecommunications firms in Kenya. The considered factors in the study were maintenance of services and products, and supply chain management. The study results revealed that there was no statistically significant association between systems operations management practices and performance of telecommunication firms in Kenya. The study agrees with Nsikan (2015) that the systems operational management practices do not reflect daily economic realities in companies.

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

### **5.1 Introduction**

This chapter discusses the major findings of the research that has been extracted from the data analysis in the previous chapter. The key findings are summarised and the researcher's conclusions drawn and recommendations arising from the research process made. The study was guided by a general objective and three specific objectives. These discussions are centred on the level of attaining both the general and specific objectives.

### **5.2 Summary of Research Findings**

The purpose of the study was to establish the effect of operations management practices on the performance of the telecommunication firms in Kenya. The factors which were developed in the conceptual framework to enable the researcher investigate the study objectives were design operation practices, operations practices and system operations. It was established that there was a significant effect of the design operations management practices on the performance of the telecommunication firms in Kenya. This therefore means that the companies should invest more on design improvement strategies to enable the firms spur the organizational performance.

The study also established that there was a significant effect of the operations management strategies adopted by the telecommunication firms in Kenya. The firms should therefore invest on the quality improvement of their products and services. In the firms' competitive strategies, they need to consider their customers in facility

locations. This will reduce their operating costs hence increasing their financial performance.

The results of the study revealed that there was no significant effect of systems operations practices on the performance of the telecommunication firms. However, there was a positive relationship between the systems operations practices and the performance. This means that the firms need to improve the maintenance and inspection of their products and service delivery. The companies also need to improve on their supply chain management practices, scheduling practices and inventory management practices. The improvements stated will increase the performance of the telecommunication firms in Kenya.

### **5.3 Conclusions**

The study concludes that operations management practices of Telecommunications firms in Kenya have an effect on their performance. The operations management practices increase efficiency and effectiveness in organizations, customer satisfaction and competitive advantage. The operations management practices alone will not yield performance therefore firms are expected to implement management strategies and continuous training of employees to achieve high performance. The companies should provide coaching, training and career development opportunities to the employees to enhance operational performance and change any negative perceptions the employees may have towards organizational operation management.

### **5.4 Recommendations**

The study makes recommendations that address emerging trends and challenges in the telecommunication industry in Kenya. The telecommunication companies need to invest more on technology improvement due to the fast innovations witnessed in the

sector. The government can offer the required technological environment through investment in technological infrastructure. This can be done through the evolution of advanced services on e-platforms such as e-government, e-commerce, e-learning IPTC/Triple Play which has contributed to increased demand for internet bandwidth. This will ensure that the telecommunication companies enjoy reduced costs of operations.

Operations managers need to consider utilization of operations management policies and the restructuring of the same to help in maximizing the potential that can be garnered by effective employee utilization hence improving the firm performance.

There is an old adage goes, “Customer is king”. This simply means that the telecommunication firms should take time to provide product and services aimed at satisfying the needs of customers at all times. They are expected to carry out a customer needs analysis and find out means and ways of meeting them. Without a customer focused strategies, the firms cease to exist in its operations.

### **5.5 Limitations of the Study**

The limitation of the study was the low response rate to questionnaires from some firms who also have restricted or no available data from secondary sources. Also, to note that the results were generated from a one-time data collection and there was no such related data from previous years for comparison.

### **5.6 Suggestions for further Research**

The study used qualitative data in the examination of organizational performance. Further research should consider use of quantitative data in determining the performance of the firms. This will ensure data from several years is examined.

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## LIST OF APPENDICES

### APPENDIX I: QUESTIONNAIRE

Kindly answer the following questions by ticking in the appropriate box or filling the spaces provided.

#### PART A: GENERAL INFORMATION

1. Position of respondent:      Supervisor       Non – Supervisory
2. Does your company have an operations management department? Yes  No

#### PART B: OPERATIONS MANAGEMENT PRACTICES

Indicate on a scale of 1-5 to what extent you agree with the following about your company.

- 1= Strongly disagree      2=Disagree      3 =Neither agree nor disagree 4= Agree  
5=Strongly Agree

<b>Quality Management</b>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
3. Company has a quality management system in place					
4. Staff are continuously trained and educated on quality programs					
5. Company welcomes and acts on customers' complaints					
6. There is continuous improvement on handling of customers					
7. Company relies on feedback from Communications Commission Authority on quality of its products					

<b>Design of services</b>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
8. The services comply with the legal requirements in the country					

<b>Design of services</b>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
9. Provide services that are easily acceptable in the market					
10. Provide services that are able to satisfy customers'					
11. Minimizes service cost					
12. Company follows keenly on what competitor has in the market					

<b>Work flow and Job Design</b>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
13. Employees fully understand the goals, policies, and objectives of this organization					
14. The organization has a reporting and communication structure					
15. Employees have job descriptions					
16. The organization provides continuous training of job and procedure					
17. There is a system for collecting employees' opinions					
18. Supervisors provide feedback to employees on periodic unit performance					
19. There is a strong spirit of cooperation in the organization					
20. Organization takes care of employee welfare					

<b>Process and Capacity Design</b>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
21. Company does invest in long term systems for operations					
22. Company is able to respond to changes in demand quickly					
23. Company is able to forecast demand accurately					
24. Company outsource work to other firms when demand is high					

<b>Facility location</b>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
25. Location is close to customers					
26. Distribution, transportation and other utilities are easily accessible					
27. Affordable rent and Leasing costs					
28. Labor easily available					

<b>Maintenance</b>	Strongly disagree	Disagree	Neither agree nor	Agree	Strongly agree
29. Maintenance services are done regularly					
30. Maintenance services are done when there is less work or when equipment breaks down					
31. Company undertakes regular inspection of its products and facilities					

<b>Supply Chain Management</b>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
32. Suppliers operate as separate entities with their own goals					

<b>Supply Chain Management</b>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
33. Company gathers feedback from distributors and customers on how to improve the systems					
34. The company deals with a few prequalified suppliers					
35. The company provides technical assistance to suppliers, distributors and customers					
36. The company can locate and track movement of items					

<b>Scheduling</b>	Strongly disagree	Disagree	Neither agree nor	Agree	Strongly agree
37. Company maintains constant production and supply					
38. Company hires more workers when demand increases					
39. Increasing or decreasing working hours depending on demand					
40. Employees work overtime more often to clear backlogs					

<b>Inventory Management</b>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
41. Company uses computer software to manage its inventory					
42. Company orders at specific times in the year					
43. Company orders for goods randomly depending on demand					

<b>Inventory Management</b>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
44. Cost determines the amount of goods to be ordered					
45. Company considers discounts when ordering for goods					
46. Orders are placed depending on customer demand					

<b>Layout Strategy</b>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
47. Departments are divided based on similarity of duties					
48. Divisions are grouped depending on products they deal with					
49. Divisions operate according to their geographical locations					
50. Designed for ease of future expansion and improvement					
51. Properly utilize the space available					
52. It is easy for employees to communicate with one another					
53. To ensure safety of employees					

**PART C: ORGANIZATIONAL PERFORMANCE – (Tick where applicable)**

Indicate on a scale of 1-5 to what extent you agree with the following about your company.

1=Not Important      2 = Less Important      3= Important 4= Very Important  
5= Extremely Important

<b>Performance indicators</b>	<b>Not important</b>	<b>Less important</b>	<b>Important</b>	<b>Very important</b>	<b>Extremely important</b>
54. How important is customer satisfaction offering as part of your organization’s performance?					
55. How important is profit offering as part of your organization’s performance?					
56. How important is market share offering as part of your organization’s performance?					
57. How important is shareholder value offering as part of your organization’s performance?					

**PART D: ADDITIONAL INFORMATION**

58. Given an opportunity to improve the relationship between your suppliers, distributor and customer. What are three most important items you would do first?

.....  
 .....  
 .....

59. In your opinion what are some of the practices that your company can adopt to make its operations more effective and efficient?

.....  
 .....

**Thank you for taking your time to respond to this questionnaire.**