

**SUPPLY CHAIN INTEGRATION STRATEGIES AND OPERATIONAL  
PERFORMANCE OF THE TREASURY IN KENYA**

**BY**

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**A Research Project Submitted in Partial Fulfilment of the Requirement for the  
Award of the Degree of Master of Business Administration, School of Business,**

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## DECLARATION

I hereby certify that this research project is my original work and has not been presented for examination in any other university.

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This research project has been submitted for examination with my approval as the University Supervisor

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## **DEDICATION**

This work is dedicated to those who helped me carry out this research and to the almighty God for the wisdom and gift of life that has made me realize and see the conclusion of this research.

## **ACKNOWLEDGEMENT**

I would like to express my deepest appreciation to the following people for their support that made this research paper a success.

To my academic Supervisor Dr. Magutu. P. Obara for his great contribution and support offered that enabled this research project to take its present form, without his guidance and persistent help, this research would not have been successfully completed.

I must admit humbly that the success of this research has been largely due to collaborative efforts and devotion of many people to who I owe a lot of gratitude my family and colleagues.

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## ABSTRACT

Supply chain encompasses the facilities where raw materials, intermediate products and finished goods are acquired, transformed, stored and sold. Supply chain integration practices are considered a powerful weapon to gain competitive advantages and linking performance measurement systems to supply chain integration practices can lead to increased success of supply chain initiatives. This study sought to establish supply chain integration practices by narrowing the contextual scope to the national Treasury in Kenya. The study adopted a descriptive research design to identify supply chain integration practices and operational performance measures. The sample population of this study comprised 121 employees of the National Treasury as at August, 2015. From the findings supply chain integration practices most practiced at the Treasury in Kenya were identified, amongst these efficient customer response, customer relationship management practices, vendor managed inventory practices, distribution requirement planning, and enterprise resource planning practices were highly ranked. Supply chain integration practices leads to operational effectiveness, most of the respondents strongly agreed. The study concludes that performance at the Treasury in Kenya has improved because the vendors have access to customer's inventory data to ensure efficient management, employment of efficient consumer response practice and promote customer relationship and management practices. The study recommends that the various government departments in Kenya adopts the supply chain integration practices extensively as it has established the positive effect in both operational and business performance of an organization and that good relationships with supply chain members including customers are needed for enhanced organizational performance.

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# CHAPTER ONE

## INTRODUCTION

### 1.1 Study Background

The current business environment is mostly described as intensely dynamic, globalised and competitive. Therefore, to maintain competitiveness in this challenging environment, organizations should strive to get into the synergies across the many supply chains in an approach called supply chain integration (SCI). Supply chain refers to a sequence of organisational entities utilized in creating and delivering customer value, be it in the kind of a tangible product, intangible service, or in blend of the both products and services (Morgan & Monczka, 2006). It also refers to the intricate network of associations that organisations have with trading collaborators to manufacture, procure and deliver goods and services.

Supply chain entails the facilities where finished goods, intermediate products and raw materials are stored, sold, transformed and even acquired. Integration of Supply chain is the formation of internal and external organisational structures especially, at the business development level, in line with the general strategic objectives of partner organizations (Christopher, 2000). Operational performance is commonly defined in accepted supply chain metrics of performance, including the traditional measures such as service level, cost and throughput.

Supply chain management (SCM) practices have become known in the last decade as a strategic choice to upcoming challenges in worldwide business environment. SCM tries to promote spirited action by narrowly combining the functions within a company and successfully relating them to the operations of channel members and suppliers (Ballou, 2007). Integrating supply chain management integrating is a critical business procedure

from final consumer through original suppliers who provide goods, information and or services which add value for stakeholders and customers. Companies are able to manage supply chains by linking the functions of the supply chain (SC) such as these; manufacturing, procurement and completion through the planning processes of supply chain. Integrated supply chain gives the most all-encompassing impact on financial outcomes and as a result part of the recording process needs to determine how the elements in the supply chain are functioning to produce those results (Lambert & Cooper, 2008)

### **1.1.1 Supply Chain Management Strategy**

SCM entails the flow of services and products from raw material with the suppliers to parts end product with the manufacturers .This running is linked by storage activities and transportation and managed through the exchange of information and currency. SCM involves also integrating and coordinating these flows within and among other companies. SCM system aids in inter-enterprise collaboration and cooperation with customers, suppliers, and business partners. The ultimate aim of any efficient SCM system is to minimize inventory with the assumption that products are always available when required. By the Global Supply Chain Forum, SCM refers to the amalgamation of core business activities from the end consumer via the original suppliers who provide goods, information and services which put in value for stakeholders and customer (Seuring & Müller, 2008).

As much as SCM brings competitive advantage and eventual benefits to firms, the planning, implementation and management of the same poses significant challenges to the organisations involved. Business redesigning and integration are very important components in SCM implementation. Integration engages implementing ERP systems in ensuring that they communicate or relate with other systems, as well as involves integrating SCM systems and ERP with Customer Relationship Management (CRM), e-procurement and e-marketplaces, and Product Lifecycle Management (PLM), and also making them

readily available over the Web to boost operational and cooperation performance across the complete supply chain.

### **1.1.2 Supply Chain Integration Strategy**

There are arrays of existing descriptions for supply chain integration (Vickery, Jayaram, Droge & Calantone, 2003). Most frequently, the term is employed to define the extent to which organizations have removed boundaries from their internal processes, and the degree to which information is passed between actors of the supply chain. However, this description lacks strategic focus.

From a strategic viewpoint, supply chain integration is stated as the dynamic working together of companies, their customers and suppliers to create, determine, fulfil, and communicate customer value in the overall environment. Firms which responded to this call realized that this strategic move additionally put them on a sustainable competitive edge. This way the enterprises began the sequence of offering better and higher levels of service, as customers became more diversified in preferences and demanding. A supply chain integration design to managing business actions, advocates for the mixing and arrangement of core business processes throughout the whole chain of supply with particular highlighting on agility, efficiency and responsiveness (Stephens, 2001).

Besides being less willing to condone substandard services, customers have also become accustomed to customized services and products. The consequent rise of product and service offerings for a universal market has led to a tremendous amount of complexity for core supply chain tasks including production planning, demand management, order fulfilment and inventory management. The efficient and effective management of customer needs and requirements in a setting of product and service outbursts and limited product

life cycles calls for companies and their subsequent supply chains so as to be competent of acting as virtual and single entities (Kannan & Tan, 2005).

### **1.1.3 Operational Performance**

Operational performance refers to an enterprise's performance measured against recommended indicators or standards of efficiency, effectiveness, and or environmental responsibilities like, regulatory compliance, waste reduction and cycle time (Zhu & Sarkis, 2004). Operational Performance Management (OPM) is the association of all business components within an organization to guarantee that they are working hand in hand to meet the key business goals (Lee, 2000). A company should organize its operating surroundings to realize one or more of five the operational performance objectives which include flexibility, speed, costs, quality and dependability.

Speed objective refers to the pace at which a given company generates sales, how quickly and often the company delivers its respective goods and services. Additionally, speed refers to issues such as the time needed to produce one or more of products and services and the period the firm requires in researching and developing a novel product and or service. For effective operational performance, the activities of the company should be flexible; According to Gunasekaran and Kobu (2007) flexibility asks of a company to produce products and services of diverse quality levels and with a mixture of design modifications. Also, flexibility further requires a company adapts operations to meet upcoming and shifting production volumes and delivery schedules.

Objectives of Costs performance refer to the disparity in unit cost which arise from varying volume of the expected products and or services. According to Zhu and Sarkis (2004), the higher the range of products and services produced, the less the volume produced and hence the higher the unit cost and the reverse also apply. The quality of the service or product is

greater than conformance to a specification. It is how efficiently a product or service performs its intended function, the acceptability of its features and the reliability of the product or service .

#### **1.1.4 Treasury in Kenya**

The Treasury obtains its mandate from the Kenyan Constitution, Cap VII Sections 99-103 that provides for appropriate expenditure and budgetary management of financial resources of the government. Furthermore, the Parliament has over the years endorsed 49 Acts of which the Treasury is a custodian.

There are various ways in which the functions of the Treasury are strategic. The main function is the responsibility of formulating economic and financial policies. Secondly, it is responsible for creating and maintaining sound monetary and fiscal policies that promote socio - economic development. Such responsibilities make the Treasury central and strategic to the economic management of the country, as most sectors of the economy rely on the Treasury to create a suitable environment in which they can efficiently and effectively operate. The national Treasury standardizes the financial sector which is fundamental in the country's development and on which most other sectors depend on for investment resources.

An additional strategic responsibility of the national Treasury is the management of expenditure, revenues and borrowing by the national government. It must make certain that it mobilises sufficient resources to sustain government activities and programmes. Consequently, it has the role of developing sound fiscal policies which ensure manageable budget deficits. Moreover, the national Treasury ascertains that expenditure by the government is contained by the revenue collected to minimize domestic borrowing that tends to lead to negative ripples in management of the economy (GoK Treasury, 2015).

Treasury Twin Peaks is a complete and comprehensive system for regulating the financial sector. It aims at ensuring better results for financial consumers and the wider economy, by promoting fair treatment of the customers and protection of their funds against the risk of failing institutions, and by minimizing the risk of utilizing funds from the taxpayer to protect the economy from systemic malfunctions. Twin Peaks lays the same focus on prudential and market behaviour supervision by putting up dedicated authorities who are in charge of each of the objectives. It also places a different focus on financial stability.

## **1.2 Research Problem**

The effective incorporation of the supply chain conceptually lets participants to realize a considerable competitive advantage resulting from enhancements in cost reduction and responsiveness, leading to improved profitability and performance. In addition, effective supply chain management implies seeking long-term and close working relationships with consumers and suppliers, developing interactive relationships and working hand in hand to resolve common setbacks and in cooperation make arrangements for the future. Successful integration of strategies requires adequate time and further operation of the various actors in supply chains strongly rely on matters such as quality assurance, timely delivery of a service besides cost minimization. For this reason, performance of a given entity in the supply chain (SC) depends upon the performance of the others too and their ability and willingness to harmonize activities in the SC (Kouvelis, Chambers & Wang, 2006).

SCM chiefly entails the management of relationships among consumers and suppliers to offer the greatest value to customers. Supply chain management needs internal and external organisational mixing. Managing the supply chain in the upcoming business environment is turning out to be a great challenge. Rapid growth in technology, market globalization, high complexities in distribution, logistics and manufacturing as well as short product life

cycle, have led to intricacies in managing supply chains (Croom, Romano & Giannakis, 2000). Firm integration is applied in depicting diverse interrelationships between units within the same company. For instance, externally and internally, firms can integrate the different elements of their activities.

Studies have shown that effective implementation of SC strategies contribute to organizational and operational performance. In 2001, Frohlich and Westbrook carried out a study to establish the greater effect of consumer and supplier integration on the performance of a company. The study acknowledged five different strategies of integration: inward-facing, customer-facing, periphery-facing, outward-facing and supplier-facing. Such strategies of integration signify the various extents of integration with consumers and suppliers. The study established that companies with wider and closer supply chain mixing – with consumers and suppliers – had the greatest performance progress. Yunus (2013) carried out an experimental study on supply chain incorporation in Indonesia and the findings supported previous studies relating to the positive relationship linking supply chain integration traditions and firm performance. Vickery et al (2003) observed that the association amid SCI and financial outcomes was indirectly and totally mediated by the effectiveness of customer service.

Locally, various studies have been conducted on strategies adopted by various companies. Mukasa (2010) carried out a study to find out the effect of Safaricom's SCM practices on its performance in the Kenya telecommunication industry. The study observed that there existed a very strong supply chain management practices in Safaricom and there was evidence of superior operational performance within the supply chain. Ijomba (2010) did a study to determine the effects of integrated SC on working of Nairobi Bottlers Limited. The study established that the company really benefited from incorporated supply

chain on its operations which was evident on increased profitability and increased customer satisfaction since its adoption.

In another study, Saidi, Cherotich, Ismael, and Abdow (2014) examined lean SCM practices of service industries in Kenya with Kenya National Hospital (KNH) as the case study. The study established that, KNH utilized aspects of lean supply chain management like: waste reduction to ensure clients do not spent much time than expected, minimize unnecessary movement, and reduce excess inventory. Major challenges encountered included lack of resources, misunderstanding of lean among the staff on lean practices as well as lack of top management commitment. Kariuki (2014) studied E-procurement and supply chain management using the case of Standard Chartered Bank of Kenya. The study found that an E-procurement system is effective in bringing about a lot of benefits; better inventory management, better contract compliance where deliveries were timely and as per specification meaning fewer returns. As Yunus (2013) and Frohlich and Westbrook (2001) recommend that there is need for more research to investigate, compare and contrast findings on associations between various operational performances and integration of the supply chain from a different country and a different type of industry. This study consequently sought to increase the existing understanding the practices of supply chain integration by narrowing the contextual scope to the national Treasury in Kenya. It is therefore due to this research gap that this study purposed to answer two research enquiries: Which supply chain integration practices are adopted by the Treasury in Kenya? What consequences of the adopted SCI practices on operational performance at the Treasury in Kenya are there?

### **1.3 Study Objectives**

The main objective was to ascertain the effects of the adopted supply chain integration strategies on operational performance at the Treasury in Kenya.



The study was based on the specific objectives highlighted below:

- i. To establish the SC integration practices adopted by the Treasury in Kenya, and
- ii. To establish the effects of the adopted SC integration practices on operational performance at the Kenya Treasury.

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

The research findings and recommendations would be beneficial to the following groups.

To the national Treasury to identify the supply chain strategies which it can use so as to improve the distribution efficiency in order to improve their operational performance. It would also help the Treasury to identify non-value adding activities which consume resources with no benefit; the resources thus saved would help the Treasury improve on its operational cost and customer service delivery.

This study would be important to other government institutions to enable them to gauge their SCM strategies and fit them into the rising trends so as to be able to develop and discover areas of opportunities particularly those relating to, cost lessening and effectiveness within supply chain.

The researchers and academic community could use this study as a stepping stone for further studies on the national treasury. The learners and academics would make use of this study as a foundation for discussions concerning SC integration strategies. The study would also expand the body of familiarity on SCM.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviews a number of the studies carried out previously in the section of integration practices of SC. It seeks to establish the SCI practices and also to determine the connection between SCI practices and operational performance. It then summarizes the reviewed literature and conceptualizes the study variables.

#### **2.2 Supply Chain Integration Practices**

According to Frolich and Westbrook (2001), SC integration practices are the collaborative endeavour in linking tasks and SC systems in terms of the physical flow, information and process. Supply chain integration practices also refer to the extent to which manufacturers tactically work together with partners in the supply chain and collaboratively manage internal and external organization processes. Yunus (2013) argues that the integration procedure includes activities that call for, share and combine strategic understanding and information with entities outside the acting organization. Supply chain integration practices further refers to the connections among diverse supply chain units.

Supply chain integration practices are made up of the internal associations between the functions, business units or departments, within the company that look for, deliver and make products and the external associations with parties outside the company, including the group of the direct suppliers, their supplier, direct consumers and their customers. It incorporates a set of entities which are openly involved in the value addition processes essential for achieving effective and efficient downstream and upstream flow of finances, products, decisions and services, from the source to customers. This indicates that the

effectiveness of any SC practice must be analysed according to the significant impact on the practice on the proficient integration of the entire SC procedures.

Supply chain integration practices are subdivided into internal and external integration practices. Min & Zhou (2002) posited that internal integration practices combines different internal perspectives and refers to the extent to which organisations aim for cross functional linkage, develop structures for interaction, and execute cross functional operations in their everyday business. Any organisation is said to have great levels of mixing when the systems of information and various activities are concurrent with all functions and are capable to access timely and accurate information from other functions and also effective and clear ways of communication across all functions (Frohlich and Westbrook, 2001).

The course of action of SCI needs to advance from a combination of the internal logistics practices to the external incorporation with consumers and suppliers. It is possible to achieve the internal integration by standardization and automation of all internal logistics function, continuous control of performance, introduction of new and better technology as application of central organizational structures. On the other hand, external integration is achievable by strategic linkage and information sharing with consumers and suppliers as well regularizing of logistics processes between firms (Power, 2005).

Amalgamation with suppliers indicates a change to a cooperative from adversarial attitude, instigating with service or product development, supply of better quality services and products, incorporation and processing of changes in technology exchange, design support and specifications. To achieve customer integration, Yunus (2013) suggests that there should be faultless links between the organisation and its customers and the parties should be able to access timely and accurate information. Yunus further recommends that there

must be flawless connections in terms of supplier-customer relations and business processes.

Several theories have been put forward in a trial to offer to the field of supply chain integration. For instance, the systems theory gives emphasis to the interrelated nature of organisational functions (Ashmos and Huber, 1987). The theory reveals the degree of the level of supply chain of analysis, describes organizational behaviour as well as the explanations presented by other degrees of analysis, like the firm, the nation at large and the industry and also the extent to which organizations bring out well integrated supply chains in addition to their performance implications.

The supply chain integration practices commonly practiced by organisations include:

### **2.2.1 Efficient Consumer Response (ECR) Practices**

Efficient consumer response (ECR) practice is a combined strategy for distribution channels and service providers that is devoted to offering end consumers the best service, the highest value, and the widest assortment of products, by putting collectively the needs expressed from the company's supply chain as well as the consumer's needs (ECR Europe & Accenture, 2001). ECR is sometimes referred to as a system and sometimes as a movement. ECR also refers to an approach that aims at the improvement of the value chain and delivers financial returns worth about 5% of retail sales, but dependent on the state of affairs to which it is applied. It was initially developed in the grocery business but the principles have far reaching applications. Its strong point is that a complete value chain, from the manufacturers' suppliers up to their final consumers can be analysed in totality to identify openings for improvement (Fabbe-Costes & Jahre, 2008).

ECR was introduced to eradicate the needless costs in the SC besides the necessity of sourcing for proper and faster action to demands of consumers (Ferre and Del Castillo,

1996). It aims at making the entire manufacturer-retailer link answerable to the customer by emphasizing on consumer convenience and sovereignty as the key agents for change. In 1992, the Food Marketing Institute and the Grocery Manufacturers of America formed a group known as Efficient Consumer Response. The main objective of ECR group was to react in time and very efficiently to the trends and endless changes of consumer behaviour through jointly set goals and coordinated business processes. The ECR scheme provides an outline for vertical cooperation between suppliers and autonomous manufacturers in the fields of replenishment, packaging and assortment.

### **2.2.2 Customer Relationship Management Practices**

Customer relationship management (CRM) practices refers to all embracing approaches that flawlessly integrate sales, Twin Peaks is a complete and comprehensive system for standardizing the financial sector. It aims at ensuring better results for financial customers as well as the wider economy, by ensuring that customers' funds are guarded against the risk failing institutions, by minimizing chances of utilizing funds of the taxpayers to protect the economy from complete failures, the consumers are treated fairly, Twin Peaks gives equal stress on supervision of market conduct and prudential by putting in place dedicated authorities accountable for each of these goals. It also puts a different focus on financial stability, field support, customer service, marketing and other functions that reach the customers (Chou, Lim, Xu & Yen, 2002). CRM defines the approach to overseeing a company's dealings with current as well as future customers. It often entails use of technology for automation, and synchronization of sales, organization, marketing, customer service and technical support. The aim of CRM is to understand the customer drivers and profitability, thereby enabling the firms to better their offerings so as to take full advantage of the overall value of their consumer portfolio (Chen, Daugherty and Landry, 2009). The consideration management of Customer relationship is presently

receiving across all businesses is explained by the saturation and competitiveness of the marketing environment of today. Therefore, Customer relationship management generally refers to an enterprise-focused venture encompassing most departments in an organisation.

### **2.2.3 Vendor Managed Inventory (VMI) Practices**

VMI practices refers to the optimization of SC performance whereby the supplier got entry to the customer's inventory information and is answerable for retaining the inventory levels required by that customer (Kaipia, Holmström & Tanskanen, 2002). In a VMI enterprise, the supplier makes decisions of when to replenish the inventory for the companies. VMI is a combined process involving the supplier and the manufacturer and or a manufacturer, a retailer and a distributor, and the manufacturer gets access to the inventory information and demand from the retailer while using this information for management of the retailer's inventory.

De Toni and Zamolo (2005) highlighted the key attributes of VMI as punctual, frequent deliveries and short replenishment lead times that optimize transport and planning and production. Still, by to them, the mid or long term partnership consents to proportion the capacity of supplier's production and determine the maximum and minimum level of the customer's inventory. VMI is a model of how possible it is to advance the supplier partnership and also the efficiency of material flows in a firm. A supplier is able to line up his operations along the needs of a firm by putting the inventory within the site of the firm. The supplier does this in a much transparent manner, as they do not make guesses any longer on what will be the actual demand or requirement and they understand better what products to make available.

#### **2.2.4 Distribution Requirements Planning (DRP) Practices**

DRP practice is distinctly known as the role of establishing the necessity to restock inventory in member storehouses. The DRP system puts together all customer orders with prospects and acts as the beginning force in the system. Distribution requirements planning allow you to set up and maintain a truly integrated supply chain. A time staged point for ordering approach is applied where the planned orders at the smaller depots level are blown up via distribution requirements planning logic to become a heap of requirements to the supplying party. In cases of multistage distribution networks, such an explosion moment can go on to the various levels of regional storehouses and end up becoming inputs to the major production schedule.

A period staged order advance is applied when the purchase requisitions on the smaller warehouse degree are blowing up via material requirement planning logic to get to a heap of needs on the delivering source. However, in case of multistage networks of distribution, the explosion procedure can go on to the different levels of regional stockrooms and end up becoming inputs to the schedule of major production. Demand applied on the delivering sources is known as standard and dependent when material requirement logic is applied. A distribution requirement planning enhances the optimization of replenishing of inventory at storehouses in a multilevel distribution setup. Transportation and stock-outs costs can for that reason be decreased without increasing the overall levels of stock.

#### **2.2.5 Enterprise Resource Planning Practices**

ERP refers to an integrated transaction, reporting and processing system which provides the means for keeping track of organizational resources, including people, technology and processes. It is the backbone of an organisation providing the support and information needed for making decisions and creating connections between organisational processes. According to Porter's value chain (1985), Enterprise Resource Planning systems has the

ability to boost a firm's capability to compete in at any of the following form: Infrastructure where the system provides integrated and comprehensive data for management of enterprise value addition and creation: Human resource management where the ERP emphasizes that people are the organization's most valuable asset, as much as they are not shown on any kind financial statement.

The Enterprise Resource Planning system can aid in managing almost every other major human resource related task, such as hiring, recruitment, compensation and training, management of benefits and retirement: Purchasing-Procurement personnel can make notes on performance of suppliers; also, they can reduce usage of paper by utilizing electronic purchase orders and in addition to other documents. To achieve internal supply chain integration organizations typically use enterprise resource planning practices.

### **2.3 Operational Performance**

Measures of performance are imperative to effectiveness of an organisation. Operational performance indicators serve to show how well the organisation is running. Measuring operational performance facilitates a wider perspective of the organisation and improvement of the overall performance (Gunasekaran et al. 2001).

There is a rising requisite to focus on the measurement of performance of organisations in which a company is a collaborator. Companies have acknowledged that to compete in an incessantly changing setting, it is only indispensable to understand and monitor its performances. Previous studies emphasize on the need to scrutinize the impact of SCI practices on operational performance. They suggested that SC combination practices are mandatory to enable enterprises deal with the increasing uncertainty and complexity in the setting. They dispute that highly incorporated firms will expand their competitive advantage above their competitors due to the augmented knowledge of operation and



information visibility shared among the members of the SC, and also the decrease of the general SC expenditure (Seuring & Müller, 2008).

Internal functional integration practices have for instance been realized to have a constructive effect on logistics performance (Kaufman, 2002). Flynn et al. (2010) concluded that supplier integration practices enhance product quality while (Swink, Narasimhan & Wang, 2007) reported that customer assimilation has a very encouraging impact on the market performance though it does not have an express effect upon overall operational performance. To accurately connect the effect of supply chain integration practices to specific operational outcomes, performance in the analysed studies is conceptualized in terms of:

**Delivery/ Reliability Performance:** Delivery performance is a key performance indicator that is broadly used measurement in supply chains to measure the fulfilment of a customers demand. Delivery performance can also explained as the degree to which products and or services delivered by a business meet the expectations of the customer. It presents an indicator of the potential of a supply chain in delivering goods and services to their customers (Gunasekaran & Ngai, 2004).

Alvarado and Kotzab (2001) in their study revealed that there are three delivery aspects: product or service led time, delivery speed, and product/service reliability. It is described as the capacity to diminish the time from receipt of an order to the time delivery to the customer as close to nil as probable. It puts together production lead-time that refers to the period between placing an order for a good or service and receiving it. This gives customers reasonable estimates on how swift their orders can be filled. Reliability of delivery entails delivering the desired quality as assured.

**Financial Performance:** Is a biased appraisal of how effectively a business can utilize assets gotten from its main means of dealings to generate income. It further means computing the outcome of an enterprise's operations and policies in monetary terms. The outcomes are reflected on the firm's profits on assets, return on investment and the additional value. The variables which compute the financial performance include: returns on investment; profit percentage on invoice gross value and sales and; invoicing liquidity and financial increase (Penlope, 2007).

**Customer Relationship:** Customer relations also referred to as customer service, means the way business interacts and communicates with the community to keep or gain customers. It is indispensable for businesses to create excellent customer relationships to draw and keep a loyal foundation of customers. Based on working of Ballou (2007), enriching customer relationships means progressing through degrees of consumer service to consumer success, to customer satisfaction (3S's). An additional dimension is the consumer feedback. SC is an element of the entire product which must guarantee value for end customers.

**Flexibility Performance:** Beamon (1999) outlines the following dimensions of flexibility: flexibility of customer service which is the ability to provide the special requests of customer service; Order flexibility which is the capability to modify order, volume, composition or size, during operation of logistics; Location flexibility which is the capacity to serve customers from optional locations of warehouses; and flexibility in delivery time - the skill to cope with different delivery times for particular customers.

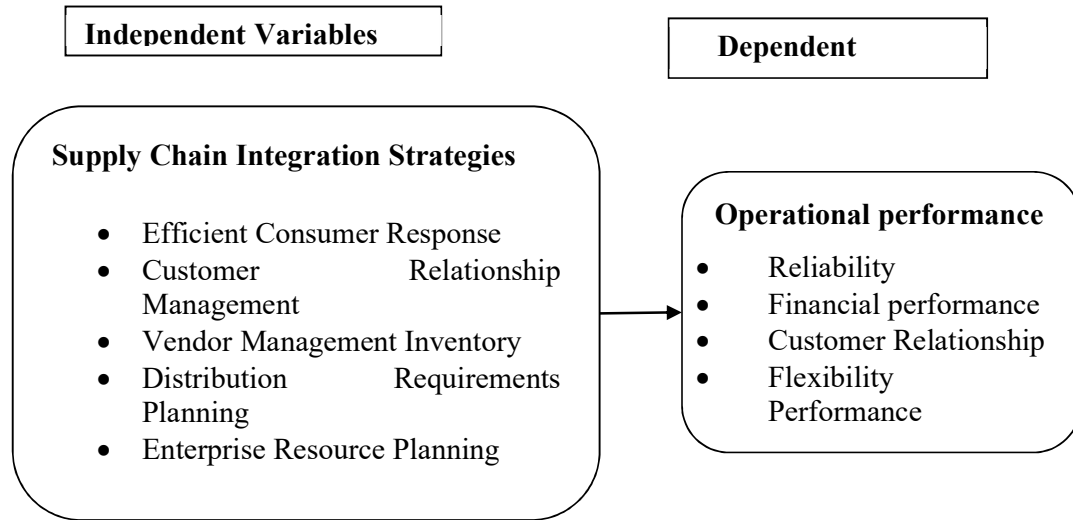
**Quality Performance:** Quality performance/quality of service refers to the numerical determination of the operation of an organization, process or division. The quality of performance can be determined by measuring of physical products and or services,

surveys of buyers and consumers of the products or statistical sampling of output of various processes. Quality has constantly been one of the most essential performance indicators in purchasing (Lambert, Cooper and Pagh, 1998).

Quality performance measurements provide the necessary information on the accuracy of the accuracy of the organisation's activities, including consistency with the sales leadership and technical project specifications in delivering products with the highest quality characteristics. Lambert et al. (1998) subdivide the concept in five dimensions: transcendent vision, production, product, value and user and in eight perspectives: performance characteristics, conformity, customer service, reliability, perceived quality and durability.

#### **2.4 Conceptual Framework**

The dependent variable in this study is operational performance of Treasury in Kenya whereas the independent variables are: Efficient Consumer Response; Customer Relationship Management; Vendor Management Inventory; Distribution Requirements Planning; and Enterprise Resource Planning. The conceptualized relationship between the variables of interest is shown in Figure 2.1



**Figure 2.1: Conceptual Framework**  
Source: (Kinya, 2016)

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

The chapter presents the method that was applied by the researcher to unearth answers to the research question. In this chapter methodology was put in order; research design, target population, sampling procedure, data collection methods, instruments of data collection and presentation.

#### **3.2 Research Design**

This is a plan outlining techniques and strategies on how data will be collected for evaluation which includes coming up with the data collection method, the instruments necessary, how the instruments are administered besides how the information was analysed after organization. The study adopted a descriptive research design to identify supply chain integration practices and operational performance measures. Cooper & Schindler (2003) posited that a descriptive study provides a detailed explanation of the existing attitudes and conditions through both observation as well as interpretation techniques.

#### **3.3 Target Population**

Population of study refers to a well stated or a set of people, elements, events, services, and group of items or households that are under investigations (Ngechu, 2004). Target population is that precise population from which information is needed. The population targeted by this study comprised 1,207 employees of the National Treasury as at August, 2015.

#### **3.4 Sampling Design and Procedure**

Kombo and Tromp (2006) term a sample as a fixed element of a given statistical population whose features are studied to gather information regarding the entire sample. Most

researchers including Mugenda and Mugenda (2003) argue that a sample size of 10% is considered representative of the full population. Stratified random sampling is deemed most appropriate for the study being carried because we will be dealing with a population of significance that is heterogeneous. As Kothari (2004) stated, if the population of concern is not uniform it should be sub-grouped into smaller categories that are logically exclusive. In this case the population was stratified into employees in different levels. The choice of 30% is representative of the population since it is greater than the 10% as projected by Cooper and Schindler (2003). The sample size will therefore be 121 respondents.

The researcher carried out a pre-study to pretest the reliability and validity of the data collected by use of questionnaires. The researcher picked a test group of 8 representatives to check the validity and reliability of the formulated research instrument. This pre-tests representative sample was not incorporated in the sample study. It is important to make the instrument requirements clear to the respondents in order to promote the instrument's reliability as well as validity. Pre-testing is carried out with the aim of correcting inconsistencies that may arise from within the questionnaires. Eventually, this enhances the instruments to measure what they were intended for. It is notable that data collected from the pilot study should not be incorporated in the actual data of the study.

### **3.6 Data Analysis**

The filled questionnaires were edited for good consistency and completeness. Quantitative data which was collected was analyzed by the using descriptive statistics in the Statistical Package for the Social Sciences (SPSS Version 20) and presented in frequencies, percentages, means and standard deviations. The information was exhibited by use of frequency tables and percentages. Mugenda and Mugenda (2003) explain that Statistical Package for the Social Sciences is an integrated and comprehensive, compilation of computer software for displaying, managing and analyzing data.

The qualitative data was categorized in various themes followed by statistical analysis. Analysis of content was applied in analysis of data that was of qualitative nature and also the kind of the information gathered through the open-ended questions. Pearson's correlation test was conducted to identify the correlation between the operational performance and the supply chain integration strategies adopted.

Additionally, multiple regression analysis was carried out on the study by application of the given model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where  $Y$  = Operational Performance

$X_1$  = Efficient Consumer Response

$X_2$  = Customer Relationship Management

$X_3$  = Vendor Management Inventory

$X_4$  = Distribution Requirements Planning

$X_5$  = Enterprise Resource Planning

$\varepsilon$  = Error Term

$\beta$  = Coefficients

## **CHAPTER FOUR**

### **DATA ANALYSIS, RESULTS AND DISCUSSION**

#### **4.1 Introduction**

This chapter highlights the data collected, analysis and interpretation. The study sought to assess the effects of the adopted supply chain integration strategies on operational performance at the Treasury in Kenya. To achieve this, the study was based on two objectives; first, to establish the SCI practices adopted by the Treasury in Kenya and to establish the effects of the adopted SCI practices on operational performance at the Treasury in Kenya. Data was gathered by use of questionnaires as the chief data collection instruments whose presentation and interpretation is given below through the use of a frequency distribution tables, mean and standard deviation.

##### **4.1.1 Response Rate**

The study aimed to reach 121 respondents who are employees of the National Treasury. Out of the distributed 121 questionnaires, 15 questionnaires were not filled fully thus were disregarded while 106 were fully filled and returned translating to a reply rate equal to 87%. This rate of response is within the statistically significant response rate for analysis and generalization of findings to the whole population (Mugenda and Mugenda, 2003).

##### **4.1.2 Reliability Analysis**

A pilot study is inevitable to carry out in order to establish the degree of reliability of the questionnaire used in the gathering of data. This was done in this study to guarantee validity and reliability of the data collected. Reliability analysis was consequently carried out using the Cronbach's Alpha that measures the internal regularity by determining if various items within a scale measure a similar construct. Easy Reg International a statistical programme was applied as the instrument of analysis to show the association between the dependent variable and the three independent variables as pointed out in the table 4.1 below.



Cronbach’s alpha of above 0.6 means that the tools were adequately reliable for the measurement. As the most entries total correlations were sensibly high, the construct legitimacy of the tools was considered practical (Brown, 2000).

**Table 4.1 Reliability and Validity**

<b>Variable/Construct description</b>	<b>Item Means</b>	<b>Coefficient Alpha Reliability</b>
Vendor managed inventory	7	0.875
Efficient consumer response	7	0.875
Customer relationship management	7	0.875
Operational performance	10	0.824
Enterprise resource planning practises	6	0.75
Distribution requirement planning	4	0.64

## **4.2 General Information**

The participants were requested to give their demographic information as well as the findings are clearly illustrated below.

### **4.2.1 Position Held at the Treasury**

The positions held at the treasury are some of the supply chain integration practices. The respondents were also asked to state their position at the Treasury. The findings are projected below in Table 4.2:

**Table 4.2 Position Held at the Treasury**

<b>Position</b>	<b>Frequency</b>	<b>Percentage</b>
Store & Record keeping personnel	40	38%
Sales/marketing personnel	33	31%
Purchase & Supply personnel	30	28%
Purchase &Supply Manager	2	2%
Managing director	1	1%
<b>Total</b>	<b>106</b>	<b>100%</b>

from the findings in table 4.2, majority 38% were store and record keeping personnel, 31% were sales/marketing personnel, 28% were purchase and supply personnel, 2% were purchase and supply managers and the least 1% were managing director.

These findings show that the respondents were majorly purchase and supply personnel who clearly understood the operational performance of different supply chain management

strategies implemented by their organization. The findings are most dependable for this study as the majority respondents are purchase and supply personnel who have the best understanding of the SC integration practices.

#### 4.2.2 Period of Time in the Positions Held

The study was seeking to establish the period the respondents had held their positions at the treasury. The findings are exhibited in Table: 4.3

**Table 4.3 Period of Time in the Positions Held**

<b>Years</b>	<b>Frequency</b>	<b>Percentage</b>
11-15 years	42	40%
4-10 years	38	36%
Less than 4 years	20	19%
15 years and above	6	6%
<b>Total</b>	<b>106</b>	<b>100%</b>

From the findings in table 4.3, majority of the respondents 40% had held their positions at the treasury for 11-15 years, followed by 36% for 4-10 years, 19% for less than 4 years and the least 6% for 15 years and above. These findings show that the respondents had worked with their organization long enough to understand how they operated to enhance operational performance.

#### 4.2.3 Period worked in the Treasury

The study sought to establish the period the respondents had worked at the treasury. The findings are shown below in Table 4.4:

**Table 4.4 Period worked in the Treasury**

<b>Years</b>	<b>Frequency</b>	<b>Percentage</b>
4-10 years	40	38%
15 years and above	31	29%
11-15 years	25	24%
Less than 4 years	10	9%
<b>Total</b>	<b>106</b>	<b>100%</b>

The majority of respondents (38%) have been working at the treasury for a period of between 4 and 10 years, followed by 29% who had worked for 15 years and above, 24%

had worked for 11-15 years and the least 9% had worked for only less than 4 years. Majority 91% of the respondents had worked at the treasury for over four years hence they were more conversant with the supply chain management strategies adopted to enhance performance. Therefore the data collected were reliable and relevant for the study.

### 4.3 Supply Chain Integration Practices

Several SCI practices were identified among which the participants were requested to state the degree to which they applied them at the treasury. A Likert scale of five points was provided running from: 1= very small extent, 2=small extent, 3= neutral, 4= great extent, 5= very great extent. From the answers, descriptive measures of central distribution: standard deviation and mean were applied for ease of generalization and interpretation of findings. The findings are clearly illustrated below.

#### 4.3.1 Efficient Consumer Response (ECR) Practice

ECR is one of the integration practices applied in the Kenya Treasury

The respondents were required to indicate the extent to which they agreed on the statements below on efficient consumer response (ECR) practice adopted at the Treasury in Kenya. The Findings are shown in Table 4.5:

**Table 4.5 Efficient Consumer Response (ECR) Practice**

	Mean	Stdev
The Treasury directly links its customers with manufactures/ distributors to enhance and facilitate quick responses for any query	4.5093	0.50224
The Treasury synchronizes the customer's needs with its suppliers/ manufactures	4.3056	0.71641

Our Company has entered into long term agreements with other companies to use our products	4.1944	1.0135
The Treasury has a framework for collaboration in the areas of assortment and packaging	4.1111	0.95049
The Treasury resolves/ collaborates with suppliers/ manufacturers on exception items	4.0463	1.16674
The treasury's supply chain relationships with your customers is more cooperative than adversarial	3.9444	0.86287
The Treasury jointly sets targets with suppliers/ manufacturers and close partners	3.5278	1.03633
<b>Overall mean</b>	<b>4.0913</b>	

To a great extent with a mean greater or equal to 4 and standard deviation greater than 0.5 the treasury directly links its customers with manufactures/ distributors to enhance and facilitate quick responses for any query(4.5093), synchronizes the customer's needs with its suppliers/ manufactures (4.3056), the company has entered into long term agreements with other companies to use our products (4.1944) and has a framework for collaboration in the areas of assortment and packaging(4.1111), resolves/ collaborates with suppliers/ manufacturers on exception items(4.0463).

The respondents also to a great extent with an average less than 4 and a standard deviation less 0.5 indicated that the treasury's supply chain relationships with your customers is more cooperative than adversarial (3.9444) and jointly sets targets with suppliers/ manufacturers and close partners (3.5278).

This means that the treasury practices Efficient Consumer Response to a great extent with an overall mean of 4.0913.

This finding is in line with the Fabbe-Costes & Jahre (2008) that its strength lies in the whole value chain, to the end consumer from manufacturers' suppliers can be analysed in totality to recognize opportunities for upgrading.

### 4.3.2 Customer Relationship Management Practices

Customer Relationship Management Practices is one of the SC integration practices identified by the repondents

The participants were asked to state the extent to which they agreed on the statements below on customer relationship management practices adopted at the Treasury in Kenya.

The Findings are shown below in Table 4.6:

**Table 4.6 Customer Relationship Management Practices**

	<b>Mean</b>	<b>Stdev</b>
The Treasury regularly sends complimentary messages/ gifts to its customers during special occasions	4.420	0.793
The Treasury has regular measures of customer service	4.362	1.008
The Treasury integrates various touch points like web, e-mail, phone & direct sales with the customers	4.167	0.7745
The Treasury frequently interacts with customers to set reliability, responsiveness, and other standards for the firm	4.140	0.7838
The Treasury strives to improve primary products/services in order to achieve greater customer satisfaction	3.753	1.101
The Treasury closely collaborates with customers to jointly plan and create value, differentiated by class of customers	3.624	1.018
The Treasury recognizes the individual needs of its employees and tries to provide each with the value they want from the company to enhance customer satisfaction	3.215	1.533
<b>Overall mean</b>	<b>3.9544</b>	

The respondents to a great extent with a mean greater or equal to 4 and standard deviation greater than 0.5 indicated that the treasury regularly sends complimentary messages/ gifts to its customers during special occasions (4.420), has regular measures of customer service(4.362), the treasury integrates different touch points like the e-mail, web, phone & direct sales with the customers(4.167), integrates these touch points like the e-mail, the web, phone & direct sales with the consumers and frequently interacts with customers to set responsibility, reliability and other standards for the company (4.140).

To a great extent with a mean less than 4 and standard deviation less 0.5, the respondents indicated that the treasury strives to improve primary products/services in order to achieve greater customer satisfaction (3.753), closely collaborates with customers to jointly plan and create value, differentiated by class of customers (3.624), recognizes the individual needs of its employees and tries to provide each with the value they want from the company to enhance customer satisfaction (3.215).

This makes it clear that the Treasury makes applies Customer Relationship Management Practices to a great extent with a general average of 3.9544.

This finding is consistent with that of Chen, Daugherty and Landry (2009) that the aim of CRM is to understand the customer drivers and profitability, thereby enabling the firms to enhance their offerings to make the most of the general value of the consumer portfolio.

### 4.3.3 Vendor Managed Inventory Practices

VMI are part of supply chain integration practices highlighted by the respondents

The respondents were required to indicate the degree to which they agreed on the statements below on vendor managed inventory practices adopted at the Treasury in Kenya.

The Findings are shown in Table 4.7:

**Table 4.7 Vendor Managed Inventory Practices**

	Mean	Stdev
The Treasury's inventory data is integrated through departments within the organization to streamline inventory decisions	4.632	0.818

The Treasury partners delays product assembly activities until customer orders have actually been confirmed to facilitate service flexibility	4.324	0.901
The Treasury practices integrated production planning with suppliers/manufacturers/distributors to facilitate optimal production	4.125	0.733
The Treasury links our customers directly with its distributors to enhance delivery/ location flexibility	3.671	1.074
The organisation's vendors have the responsibility of maintaining inventory levels required by our customers to better manage the inventory	3.540	1.0838
The organisation's vendors have access to the customer's inventory data to ensure efficient inventory management	3.342	1.078
The organisation's customers are involved in inventory planning schedules to enhance delivery reliability	3.042	1.053

**Overall mean** **3.811**

The respondents to a very great extent with a mean greater or equal to 4 and standard deviation greater than 0.5 indicated that the treasury's inventory data is incorporated through units within the organization to reorganize inventory decisions(4.632), partners delays product assembly tasks until customer requests have been actually confirmed to facilitate service flexibility(4.324) and practices integrated production planning with suppliers/manufacturers/distributors to facilitate optimal production(4.125).

To a great extent with a mean less than 4 and standard deviation less 0.5, the respondents indicated that the treasury links our customers directly with its distributors to enhance delivery/ location flexibility(3.671), the organisation's vendors have the responsibility of maintaining inventory levels required by our customers to better manage the inventory(3.540), the organisation's vendors have access to the customer's inventory data to ensure efficient inventory management(3.342) and the organisation's customers are involved in inventory planning schedules to enhance delivery reliability(3.042).

The Treasury of Kenya uses the practice of VMI to a great extent as shown by an overall mean of 3.811

This finding is consistent with that of De Toni and Zamolo (2005) that the key features of VMI as punctual and frequent deliveries as well as short replenishment lead times that optimize transport and production planning.

#### 4.3.4 Distribution Requirements Planning Practices

The practice of DRP was identified as one of the SC integration practices in the Treasury of Kenya.

The respondents were asked to indicate the extent to which they agreed on the statements below on distribution requirements planning practices adopted at the Treasury in Kenya. The Findings are shown in Table 4.8:

**Table 4.8 Distribution Requirements Planning Practices**

	<b>Mean</b>	<b>Stdev</b>
The Treasury practices collective learning with suppliers/ manufacturers to facilitate joint operation improvement	4.4259	0.1450
Our organisation develops front end agreement on operations with key partners to streamline business operations	3.9815	1.1026
Our organisation creates sales forecast in close collaboration with key suppliers/ manufactures/distributors to reduce stock outs/ waste	3.2222	1.3277
Our organisation collaborates with our customers in product design on exceptional items	3.0648	1.2826
<b>Overall mean</b>	<b>3.6736</b>	

From the finding, to a very great extent with a mean greater or equal to 4 and standard deviation greater than 0.5 the respondents indicated that the treasury practices collective learning with suppliers/ manufacturers to facilitate joint operation improvement (4.4259) and to a great extent with a mean less than 4 and standard deviation less 0.5, they indicated that the organisation develops front end agreement on operations with key partners to streamline business operations (3.9815), the organisation creates sales forecast in close collaboration with key suppliers/ manufactures/distributors to reduce stock outs/ waste (3.2222) and the organisation collaborates with our customers in product design on exceptional items (3.0648).



This means that the treasury applies the practice of Distribution Requirements Planning with the overall mean of 3.6736.

This finding is in agreement with that of Alvarado and Kotzab (2001) that there are three delivery dimensions: delivery speed, product/service led time and product/service reliability.

#### 4.3.5 Enterprise Resource Planning Practices

ERP is one of the practices of supply chain integration that was identified in the Treasury.

The respondents were required to state the extent to which they agreed on the statements below on enterprise resource planning practices adopted at the Treasury in Kenya. The Findings are shown below in Table 4.9:

**Table 4.9 Enterprise Resource Planning Practices**

	<b>Mean</b>	<b>Stdev</b>
The Treasury has integrated its data among internal functions/ departments	4.309	0.737
Our organisation has integrative inventory management	4.285	0.708
The treasury's practice of sharing of schedules with suppliers/ customers is achieved electronically	4.125	0.302
Our transactional activities between the Treasury and suppliers/distributors/customers are extensively enabled	4.123	0.301
Our internal functions are extensively integrated	4.119	0.562
E-business is an active and key integration strategy	4.023	0.214
<b>Overall mean</b>	<b>4.164</b>	

As shown in Table 4.9, to a very great extent with a mean greater or equal to 4 and standard deviation greater than 0.5 the respondents indicated that the treasury has integrated its data among internal functions/ departments(4.309), the organisation has integrative inventory management(4.285), the treasury's practice of sharing of schedules with suppliers/ customers is achieved electronically(4.125), transactional activities between the Treasury and suppliers/distributors/customers are extensively enabled (4.123), internal functions are

extensively integrated (4.119)and E-business is an active and key integration strategy (4.023).

This indicates that the Treasury applies the practice of ERP evidenced by a high extent of 4.164.

This finding is in line with the finding of Porter’s (1985) that enterprise resource planning systems has the ability to promote a firm’s capacity to participate in infrastructure and human resource management.

#### 4.3.6 Operational Performance at the Treasury

Indicators	Unit Measure	2011	2012	2013	2014	2015	Average
Timely delivery of services	%	65	80	80	72	83	76.0
Customer Satisfaction	%	80	67	76	78	80	76.2
Cost Efficiency	%	84	76	60	69	81	74.0
Capacity Utilizations	%	67	68	80	81	78	74.8
Employee Satisfaction	%	82	68	72	75	82	75.8
Employee Productivity	%	69	77	80	83	81	78.0
Employee Retention	%	68	71	76	74	79	73.6
Employee Competency	%	78	81	80	81	84	80.8
General performance	%	74.13	73.5	75.5	76.63	81.0	76.15

Operational performance at the Treasury was used as the dependent variable in this study.

The respondents were required to state the rates of the various indicators through the years from 2011 to 2015.

From the finding the average operational performance at the treasury for the five years’ period shows that timely delivery of services was at 76%, customer satisfaction was at 76.2%, cost efficiency was at 74%, capacity utilizations was at 74.8%, employee satisfaction was at 75.8%, employee productivity was at 78%, employee retention was at 73.6% and employee competency was at 80.8%.

This shows that the Treasury's operational performance is over and above average as evidenced by a general mean average of 76.15.

#### **4.4 Correlation Analysis**

Pearson's correlations analysis was performed at 95% confidence interval to enable establishing the the effects of the adopted supply chain integration strategies on operational performance at the Treasury in Kenya. As shown in Table 4.15, there is a positive correlation in the operational performance of magnitude 0.718 with efficient consumer response (ECR) practice, 0.849 with customer relationship management practices, 0.731 with vendor managed inventory practices, 0.429 with distribution requirements planning practices and a magnitude of 0.273 with enterprise resource planning practices respectively.

**Table 4.10: Correlation Analysis**

		Operational Performance	(ECR) Practice	CRM Practices	Vendor Managed	Distribution Requirements	Enterprise Resource
Operational Performance	Pearson Correlation	1	-.718*	-.849**	-.731*	-.429	-.273
	Sig. (2-tailed)		.045	.008	.039	.288	.512
(ECR) Practice	Pearson Correlation	.718*	1	.937**	.891**	.254	.622
	Sig. (2-tailed)	.045		.001	.003	.544	.099
CRM Practices	Pearson Correlation	.849*	.937**	1	.810*	.370	.538
	Sig. (2-tailed)	.008	.001		.015	.366	.169
Vendor Managed Inventory Practices	Pearson Correlation	.731*	.891**	.810*	1	.445	.761*
	Sig. (2-tailed)	.039	.003	.015		.269	.028
Distribution Requirements Planning Practices	Pearson Correlation	.429	.254	.370	.445	1	.558
	Sig. (2-tailed)	.288	.544	.366	.269		.151
Enterprise Resource Planning Practices	Pearson Correlation	.273	.622	.538	.761*	.558	1
	Sig. (2-tailed)	.512	.099	.169	.028	.151	

\*. Correlation is significant at the 0.05 level (2-tailed).

#### 4.5 Regression Analysis

The study carried out a multiple regression analysis to establish the effects of the adopted supply chain integration strategies on operational performance at the Treasury in Kenya. The results are shown in the subsequent sections.

**Table 4.11: Model Summary**

<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
1	.663 <sup>a</sup>	.439	.416	.023006

From the findings in Table 4.8, R was 0.663 meaning that there was a positive association between the independent variable and dependent variable. R<sup>2</sup> was 0.439 implying that only 43.9% of the dependent variable could be explained by the independent variable while 56.1% of the variations were due to other factors. This implies that the regression model has very good explanatory and predictor grounds.

**Table 4.12: ANOVA**

<b>Model</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	37.66	5	7.532	15.858	.031 <sup>b</sup>
Residual	48.0	101	.475		
<b>Total</b>	<b>85.66</b>	<b>106</b>			

From the findings on Table 4.12, the significance value is 0.031 which is less than 0.05 thus the model is statistically significant in predicting the effects of the adopted supply chain integration strategies on operational performance. The F critical at 5% level of significance was 2.31. Since F calculated (value = 15.858) is greater than the F critical (2.31) this shows that the overall model was significant.

**Table 4.13: Coefficients**

<b>Model</b>	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
(Constant)	1.817	.490		3.708	.000
Efficient Consumer Response (ECR) Practice	1.023	.629	1.278	1.626	.085
Customer Relationship Management Practices	1.253	.474	1.405	2.643	.042
Vendor Managed Inventory Practices	1.888	.378	1.170	4.994	.038
Distribution Requirements Planning Practices	.059	.149	.051	.399	.729
Enterprise Resource Planning Practices	.733	.172	.606	4.274	.051

The established regression equation becomes;

$$Y = 1.817 + 1.023X_1 + 1.253X_2 + 1.888X_3 + 0.059X_4 + 0.733X_5 + \varepsilon$$

Where  $Y$  = Operational Performance,  $X_1$  = Efficient Consumer Response,  $X_2$  = Customer Relationship Management,  $X_3$  = Vendor Management Inventory,  $X_4$  = Distribution Requirements Planning,  $X_5$  = Enterprise Resource Planning and  $\varepsilon$  = Error Term

From the findings in the regression analysis, if the factors (efficient consumer response, customer relationship management, vendor management inventory, distribution requirements planning and enterprise resource planning) were held constant, operational performance would be 1.817. A unit rise in efficient consumer response would lead to a rise in operational performance by 1.023. A unit increase in customer relationship management would lead to an increase in operational performance by 1.253. A unit increase in vendor management inventory would lead to an increase in operational performance by 1.888. A unit increase in distribution requirements planning would lead to an increase in operational performance by 0.059. A unit increase in enterprise resource planning would lead to an increase in operational performance by 0.733.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents a summary of key findings of the study, conclusion, limitations of the study and recommendations for future research. The study findings are presented on the the effects of the adopted supply chain integration strategies on operational performance at the Treasury in Kenya. The data was collected exclusively from the questionnaire which is the research instrument. The questionnaire was designed according to the objectives of this study.

#### **5.2 Summary of Key Findings**

From the findings supply chain integration practices most practiced at the Treasury in Kenya were identified, amongst these efficient customer response, customer relationship management practices, vendor managed inventory practices, distribution requirement planning, and enterprise resource planning practices were highly ranked. The study assessed the relationship between supply chain combination practises and operational performance. The outcomes of the correlation analysis indicate that there is positive association amid supply chain integration practises and operational performance.

Supply chain integration practices leads to operational effectiveness, most of the respondents agreed strongly. The findings revealed that the Treasury use customer focus practices as the key supply chain practice with purchasing and logistics also preferred in equal measure. The results also indicated that the Treasury prefer efficient customer response as the main supply chain practice since this goods acquisition and distribution forms the core of their business.

### **5.3 Conclusion**

The study concludes that performance at the Treasury in Kenya has improved because the vendors have access to customer's inventory data to ensure efficient management, they give their partners the responsibility of maintaining inventory levels as required by their customers, they have integrated data management within the departments, suppliers have the free hand to make inventory replenishment decisions and have linked their customers with distributors to enhance delivery and location flexibility.

Further the performance at the Treasury in Kenya has been improved through employment of efficient consumer response practice. In this sense the firms were found to practice a cooperative supply chain relationship with their customers, synchronization of customers' needs together with suppliers/manufactures, jointly set targets with suppliers/manufactures and close partners, resolve and collaborate with suppliers/manufactures on exception items, have frameworks for collaboration in the areas of assortment and packaging and have direct links with customers and manufacturers/distributors to enhance and facilitate quick response for any questions.

Strategies that have been employed to promote customer relationship and management practices are having routine/regular measures of customers, commonly interacting with consumers to set responsiveness, reliability and other standards, having close collaboration with customers to ensure joint plans, create values and differential customer's class and striving to improve primary products/services in order to achieve greater customer satisfaction as well as ensuring collaboration with distributors, intermediaries and suppliers to achieve the values of customer wants.



#### **5.4 Recommendations**

The study recommends that the various government departments in Kenya adopt the supply chain integration practices extensively as it has established the positive effect in both operational and business performance of an organization and identifies the specific integration practices commonly adopted by firms in Kenya.

This study adds greater comprehensiveness of the supply chain integration practices and enhances the understanding of the supply chain integration practices and their impact on operational performance. From the findings, the study recommends that excellent relations with supply chain members such as customers are necessary for enhanced organizational performance. Therefore organizations should strive to embrace customer relationship practices as it has been shown committed relations are the very suitable advantages due to their inherent setbacks to competition.

#### **5.5 Suggestions for Further Study**

The study recommends that a similar study be done on the public organizations for comparison on whether they have adopted the supply chain integration practices as well as on the operational performance as influenced by the practices.

While this study makes significant contribution to supply chain integration practices and operational performance, it emphasizes for more research that is not just confined to the supply chain integration practices at the treasury in Kenya but also on the factors affecting supply chain integration practices; factors as this greatly affects the supply chain integration practices and operations of an organization.

## **5.6 Limitations of the Study**

The study focuses on the treasury there is need to extent the study to various departments, due to the limitations of time and finances, organizational protocols and time frame for appointments, the study recommends that the future studies use a higher sample size in order to increase the reliability of data obtained.

The study focused on the five main practices of supply chain (efficient customer response, customer relationship management practices, vendor managed inventory practices, distribution requirement planning, and enterprise resource planning) leaving out specific areas of supply chain strategy. Also, operational performance was measured based on cost, flexibility and delivery speed which could be further extended to include measures such as quality and time.

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## APPENDICES

### Appendix I: Research Questionnaire

Date.....

Please take a few minutes to complete this questionnaire. Your honest option will be completely anonymous, but your views, in combination with those of others are extremely important in this research. This questionnaire will last approximately 20 minutes. All the information provided will be kept strictly confidential and will only be used for the purpose of this study. Your participation will be highly appreciated.

**Kindly tick the appropriate response. In case of open-ended questions, write in the space provided.**

#### SECTION A: Demographic Information

*(Please tick one box for each of the questions)*

1. What is your position at the Treasury?

Managing director [ ] Purchase & Supply Manager [ ]

Sales/marketing personnel [ ] Purchase & Supply personnel [ ]

Store & Record keeping personnel [ ]

2. How long have you been in that position?

Less than 4 years [ ] 4-10 years [ ]

11-15 years [ ] 15 years and above [ ]

3. How long have you been working with the Treasury? Please tick where appropriate

Less than 4 years [ ] 4-10 years [ ]

11-15 years [ ] 15 years and above [ ]

#### SECTION B: SUPPLY CHAIN INTEGRATION PRACTICES

4. The following are statements on supply chain integration practices adopted at the Treasury in Kenya. Rate the Extent to which you agree with the following statements on a scale of 1-5 where; 1= very small extent, 2=small extent, 3= neutral, 4= great extent, 5= very great extent.



	1	2	3	4	5
The Treasury strategically collaborates with its supply chain partners					
There is presence of internal linkages among the departments, functions, or business units within the firm					
Information systems are adopted in the organization at different functions which are linked together					
There is adoption of efficient consumer response practices aimed at ensuring that customers are treated fairly					
The suppliers of the Treasury make inventory replenishment decision for the firm					
There is adoption of vendor managed inventory are adopted to enhance short replenishment lead times that optimize production					
Enterprise resource planning practices is adopted so as to create connections between organisational processes					
Notes on supplier performance are made so as to cut down on paper by use of electronic purchase orders					
E-business is an active and key integration strategy					
The Treasury has electronically enabled its transactions with the suppliers and distributors					

**SECTION C: THE EFFECTS OF THE ADOPTED SUPPLY CHAIN INTEGRATION PRACTICES ON OPERATIONAL PERFORMANCE AT THE TREASURY IN KENYA.**

Please indicate the extent to which you agree with the given statements on the effects of the adopted supply chain integration practices on operational performance at the treasury in Kenya. Use a scale of 1-5 where; 1= very small extent, 2=small extent, 3= neutral, 4= great extent, 5= very great extent.

<b>Statements</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
The integration of internal functional practices have positively affect logistics performance					
The adoption of supplier integration practices have greatly enhance product quality					
Supplier integration practices have led to more integration of producti lead-times					

Supply chain integration practices have assured value to final customers in the economy					
Integration with suppliers have enhanced more conformity with technical set specifications					
Internal integration at the Treasury has enabled cross functional linkages					
The development of interaction structures has enhanced prompt execution of cross functional operations in the entity					

**SECTION D: OPERATIONAL PERFORMANCE AT THE TREASURY IN KENYA.**

Please provide the requested statistics on the following variables in as far as operational performance of Treasury is concerned.

<b>Indicators</b>	<b>Unit Measure</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Timely delivery of services	%					
Customer Satisfaction	%					
Cost Efficiency	%					
Capacity Utilizations	%					
Employee Satisfaction	%					
Employee Productivity	%					
Employee Retention	%					
Employee Competency Development	%					

**THANK YOU**