

EFFECT OF SUPPLY CHAIN LINKAGES AND PROCUREMENT PERFORMANCE IN MANUFACTURING FIRMS: A CASE OF EAST AFRICAN BREWERIES LIMITED

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Abstract: Procurement performance of the manufacturing firms is considered as a source of concern to both public and private sector clients. Manufacturing firm's performance remains a prominent issue in service delivery all over the world. However, in a manufacturing firm, there is a growing concern regarding the reasons why the requisite objectives are not achieved as per the public expectation. Thus, the general objective of the study was to determine the effect of supply chain linkages and procurement performance in manufacturing firms: a case of Kenya breweries limited. The study-specific objectives were to determine the effect of customer linkages on procurement performance, to establish the effect of supplier linkages on procurement performance, to assess the effect of internal linkages on procurement performance, to establish the effect of information-based linkages on procurement performance in Kenyan manufacturing firms. The study was informed by the Transaction Cost Economics Theory, Institutional Theory and Resources based theory. The study type utilised descriptive research design and employed quantitative approaches. The target population encompassed 115 employees drawn from five major departments of EABL headquarters in Kenya. Simple random sampling technique was used to select a sample size of 86 employees. The study used questionnaires to collect primary data. Quantitative data were analysed using descriptive statistical techniques which included frequencies, means, and standard deviations. Pearson Product Moment correlations were used to establish the relationships between the variables. Multiple regressions were used to establish the cause-effect relationships. The findings indicated that customer linkages, supplier linkages, internal linkages and IT-based linkages had a positive and significant effect on procurement performance. Specifically, it is through customer linkage that the firm gains critical strategic competitive weapon for effective procurement performance. Also, supplier linkage enables the firm to be aware of the production capacity of its suppliers and allows them to contribute product ideas. Besides, internal linkages have made it possible for the firm to have an integrated system for the flow of products. Consequently, it is recommended for firms to involve customers in the design phase of its products. Moreover, firms need to provide their suppliers with future demand forecasts so that they can develop the capacity to meet the demand. As well, there is a need for a high level of delivery and logistic communication so that there is the easy retrieval of inventory status. Finally, it is recommended that firms engage in the implementation of collaborative procurement initiatives such as order schedule and delivery information sharing to improve further procurement performance.

Keywords: Customer Linkages, Supplier Linkages, Internal Linkages, Information-Based Linkages and Procurement Performance.

1. INTRODUCTION

1.1.1 Background of the study

Procurement performance is an outcome of purchasing effectiveness and purchasing efficiency (Venkatesh *et al.*, 2003). Performance provides the ground for assessing how well public entities progress towards predetermined objectives and

decides on the future initiatives with the purpose of starting performance improvements. (Gelderman, *et al.*, 2006) . Measuring the performance of the purchasing function yields benefits to organisations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage as noted by (Basheka & Bisangabasaija, 2010). Research by (Gribbins *et al.*, 2003) has also described public procurement research and how these positively impact public procurement regarding cost, time, satisfaction, quality, stock, and value. Thus, improving procurement performance by managing and integrating key elements such as supply chain linkages is paramount (Gunasekaran and Ngai, 2014; Sufian, 2010). Vickery *et al.* (2013) showed that supply chain coordination and linkages are facilitated by using supply chain linkages, which directly impacts a financial performance of the firms. According to Sufian (2010) to achieve a competitive advantage and better performance, supply chain management strategy need to be linked with supply chain linkages.

Supply chain integration (SCI) is characterised by a situation where members along the supply chain collaborate and work together for better performance and profitability while meeting the demands of the customer. Firms integrating their information and material flow would lead to optimal management of the supply chain (Zailani and Rajagopal, 2015). It involves the alignment of business functions internally within a firm and with its supply chain partners to reduce costs, increase customer value and overall performance across the supply chain for all partners (Lee et al. 2017).

1.1.2 Global Perspective on Supply Chain Linkages and Procurement Performance

In Germany, Supplier linkages have been found to minimise the inspections of incoming materials as the customer firm will have an impetus to assist and certify suppliers on quality management resulting in improved productivity and quality and better design of parts (De Toni & Nassimbeni, 2000). Moreover, supplier linkages will ensure a flexible and reliable supply of materials in a mass customisation environment at a low cost (Liu et al., 2010). Furthermore, integrating suppliers in new product development activities result in improved product quality, reduced development time and engineering changes, reduced costs, and early resolved potential problems of the supplier (De Toni & Nassimbeni, 2014).

Customer linkages allow companies to enhance customer responsiveness due to increased ability to anticipate and track customer complaints, demands, and needs (Hausman & Stock, 2013). In Malaysia, Kratochvil and Carson (2015) argued that customer linkages leads to reduced steps in a business process and minimised losses by eliminating misunderstanding in the order process, which subsequently result in lower costs, improved quality and delivery, and increased customer responsiveness. Companies are forced to identify customer needs and wants promptly in order to be able to respond to their varying preferences. Integrating customers allows companies to identify their needs and address them through procurement performance tasks such as continuous replenishment, flexibility and stock management, and on time delivery (Cox et al., 2003). Customer linkages enable companies to differentiate their products from rivals and considerably enhance the provided value to customers and increase customer satisfaction and loyalty (Cox, 2004).

Internal linkages allow companies to meet and improve production scheduling through cross-functional linkages, supply and demand planning, production scheduling and planning, and customer demand management (Stratman & Roth, 2002). Internal linkages minimise conflicts and misinterpretations, facilitate the flow of information among different functions, and focus all the efforts towards fulfilling customer orders and requirements promptly.

Moberg et al. (2012) asserted that timely and shared information in the SC results in more accurate decisions and can be regarded as a pillar of superior performance. Shared information enables companies to enhance inventory control and management and increase inventory turnover. Furthermore, shared information among SC partners improves delivery performance, logistics communication, and SC planning (Trevile et al., 2014). Additionally, information sharing significantly reduces costs (Wang et al., 2016), shortens cycle time (Lin et al., 2012), and improves overall procurement performance (Zhao et al., 2012).

1.1.3 Local Perspective on Procurement performance

Manufacturing procurement performance remains a prominent issue in service delivery all over the world (Robinson et al. 2005). However, in a manufacturing firm, Gwayo et al., (2014) noted, there is a growing concern regarding the reasons why the requisite objectives are not achieved as per the public expectation. Muchung'u (2012) lamented that some projects take as many as ten years before they are completed due to supplier-related problems. The preceding has resulted in inevitable cost overruns, time overrun, idling resources, and also inconveniences to the targeted beneficiaries of such

projects (Kikwasi, 2012). This is because unfinished and unsuccessfully completed projects affect manufacturing procurement performance.

World Bank (2014) observed that procurement performance of the manufacturing sector in Kenya's economy is set to register another year of solid economic performance, expanding at 4½ per cent in 2015. According to Bolo (2011) manufacturing is an essential sector in Kenya and it makes a substantial contribution to the country's economic development. Manufacturing firms fall under the umbrella of the Kenya Association of Manufacturers (KAM, 2012). Kenya Association of manufacturers posits that removal of price controls, foreign exchange controls and the introduction of investment incentives have, however, not resulted in significant changes in the overall economy, in particular, they have not improved the manufacturing performance. The manufacturing sector accounts for approximately 10 per cent of Kenya's gross domestic product (GDP (Onuonga et al., 2011). Kenya's manufacturing sector is among the critical productive sectors identified for economic growth and development because of its immense potential for employment creation and poverty alleviation. Also, the sector will continue to provide impetus towards the achievement of Millennium Development Goals (MDGs) both in the medium and long-term particularly goal one on Eradication of extreme Poverty and hunger and goal eight on Global Partnerships for Development.

The sector is expected to play a critical role in the growth of the Kenyan economy. The overall goal of the sector is to increase its contribution to Gross Domestic Product (GDP) by at least 10 per cent per annum. Also, the sector is expected to register a growth of 10 per cent in the medium term period, (2008-2012) this is to be driven mostly by local, regional and global markets

1.1.4 Perceptive Of Manufacturing Firms

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1.2 Statement of the problem

Procurement performance of the manufacturing firms is considered as a source of concern to both public and private sector clients. Manufacturing firm's performance remains a prominent issue in service delivery all over the world (Robinson et al. 2005). However, in a manufacturing firm, Gwayo et al., (2014) noted, there is a growing concern regarding the reasons why the requisite objectives are not achieved as per the public expectation. Muchung'u (2012) lamented that some projects take as many as 10 years before they are completed due to supplier-related problems. The foregoing has resulted in inevitable cost overruns, time overrun, idling resources, and also inconveniences to the targeted beneficiaries of such projects (Kikwasi, 2012). This is so due to the fact that, incomplete and/or unsuccessfully completed projects affect manufacturing performance. EABL faces a significant challenge in its production processes because of the increasing cost of barley and hops. There is a constant spike in the commodity prices of barley which is sorghum based (Ogunda 2013). This is reflected in the slow improvement in its profit margins which is seen in the EABL 2014 annual report. Between April and July 2012, the price of barley increased by 26.06% . This exposes EABL to a significant rise in the price of the inputs used in producing beer. This, therefore, encourages an emphasis on managing sources of supply. (Euromonitor, 2012) in many cases, there is decreased lead times and cycle time. This has a negative impact on the buyers causing them to keep large buffer stock to cater for supplier uncertainty. Hence, it is paramount for firms to create supply chain linkages that boost the way suppliers respond to them. s

A number of studies on SCM practices had been conducted. For instance, Mogire (2011) conducted research on supply chain practices in five-star hotels in Kenya. Orukoh (2007) examined SCM practices in Numerical Machining Complex Ltd. He established that the company had not institutionalized a collaborative relationship with its suppliers and suggested

that effective communication, continuous improvement, competitiveness, culture, quality control and review were required as good supply chain management practices. However, the study did not try to find out the relationship between supply chain linkage and performance. Mwirigi (2007) studied green supply chain management practices by manufacturing firms in Kenya. It is quite clear from the foregoing that very little research has been done on the supply chain linkage adopted by the Kenyan manufacturing firms, This study, therefore, sought to investigate whether the supply chain linkages adopted by manufacturing firms and their effect on procurement performance need to address for further growth.

1.3. General Objectives

The general objective of the study was to determine the effect of supply chain linkages and procurement performance in manufacturing firms: a case of Kenya breweries limited

1.3.1 Specific Objectives

- i. To determine the effect of customer linkages on procurement performance in Kenyan manufacturing firms
- ii. To establish the effect of supplier linkages on procurement performance in Kenyan manufacturing firms
- iii. To determine the effect of internal linkages on procurement performance in Kenyan manufacturing firms
- iv. To determine the effect of information-based linkages on procurement performance in Kenyan manufacturing firms

1.3.2 Research questions

- i. What is the effect of customer linkages on procurement performance in Kenyan manufacturing firms?
- ii. What is the effect of supplier linkages on procurement performance in Kenyan manufacturing firms?
- iii. What is the effect of internal linkages effect on procurement performance in Kenyan manufacturing firms?
- iv. What is the effect of information-based linkages effect on procurement performance in Kenyan manufacturing firms?

2. LITERATURE REVIEW

2.1. Introduction

The underpinning theories of this study included; Transaction Cost Economics Theory, Resources based theory, Institutional Theory and finally Social exchange theory. To illustrate the fundamental concepts of effect of supply chain linkages and procurement performance in manufacturing firms: a case of Kenya breweries limited. a conceptual framework that integrates the independent and dependent variables was developed as shown in figure 1.

2.2.1 Transaction Cost Economics Theory

The transaction cost economics theory, developed by Coase (1937) has been used to study outsourcing of firm activities. This theory has received attention by the outsourcing literature since it explains why some activities are retained inside firm boundaries while others are outsourced. Williamson's concept of transaction costs offers a tentative explanation as to why a firm should choose either to manage R&D administratively within the firm or by means of transaction in the marketplace. When the transaction costs for an activity is lower than the costs of production within the firm, it would be preferably outsourced. According to Williamson (1979), activities should be retained within organizational boundaries under conditions of uncertainty, asset specificity and continual reconstructing. There are two types of costs: production and transaction costs. While outsourcing reduces production costs, it also has the potential to increase the transaction costs of an activity. Transaction costs are composed of many different costs such as searching and negotiating with partners and cost of monitoring and enforcing the contract (Agarwal and Ramaswami, 1992; Erramilli and Rao, 1993; Makino and Neupert, 2000).

This theory suggests that only when transaction costs of market exchange are more significant than the benefits of externalization then internalized operations are preferred (Brouthers, 2013; Hennart, 1991). Pisano (1990) used this perspective to examine the external sourcing of R&D, concluding that small number- bargaining motivated internalization of R&D. This conclusion was supported by Kay (1979) and Teece (1988). Both Teece and Kay argue that R&D is usually done more efficiently in-house for several reasons. For example, it is difficult to specify contracts due to high

technological, market and general business uncertainty, the protection of proprietary information is difficult, and cumulative learning processes are essential to make the lasting strategic advantage of the firm stronger. The transaction cost perspective is however questioned by Chesnais (1988) as it makes collaboration in the production of technological knowledge challenging to explain. Undoubtedly, transaction cost economics (TCE) (Williamson, 1975) has made vital contributions to the understanding of make-or-buy decisions, although its limitations have also been highlighted (Barney, 1999; Marshall et al., 2007). Asset specificity has been shown to be a key determinant of make-or-buy decisions (Leiblein, 2003; Walker and Weber, 1984; Williamson, 1981). The lower the asset specificity of activity, the easier it becomes to write complete contracts, and the more likely is outsourcing. Uncertainty has similarly been identified as a determinant of the make-or-buy decision (Williamson, 1981). Firm capabilities and resources are a firm-level indicator of what can and cannot usefully be outsourced (Barney, 1999).

2.2.2 Resources based theory

According to Barney (1991), the resource-based view examines the link between a firm's internal characteristics and performance. As the basis for a competitive advantage, the resource-based view considers the application of a bundle of tangible and intangible resources (Penrose, 1959; Wernerfelt, 1984). In order to make to competitive advantage sustainable, resources are required to be heterogeneous and immobile (Barney, 1991; Peteraf, 1993). Moreover, to create a competitive advantage, resource need to fulfil the criteria of being valuable, rare, inimitable and non-substitutable (Barney, 1991). Building on this, the resource-based view enables firms to determine their core competencies which are also critical for the creation of the latter (Espino-Rodríguez & Padrón-Robaina, 2006).

Feng et al. (2010) investigated the impact of participation with suppliers and customers on the competitive advantage as a matter of external integration with a concentration on resource-based view (RBV) and knowledge-based view (KBV). They mention based on the resource-based view and the knowledge-based view that participation with suppliers can help the company to create value in the process of cost management.

2.2.3 Institutional Theory

According to Hirsch (1975), the theory focuses on the outside factors affecting the firms. The theory hinges on three isomorphic factors such as coercive, normative, and mimetic, (Dubois & Pedersen, 2004). Those in authority apply factors relating to Coercive isomorphic. The theory can aid in understanding how firms tackle efficiency issues caused by outside factors, (Lambert, 2012). Normative isomorphic factors, on the other hand, enable businesses to comply to be assumed to have legal business operations. Subsequently, Social normative forces can clarify ecological organisation activities among businesses, (Larson, 2014). Moreover, Mimetic isomorphic factors happen when businesses copy the activities of flourishing opponents in the business, in an attempt to duplicate the course of their accomplishment, (Handfield, 1993). Publicly connected necessities like those from the clients and business as well as their rising ecological demands form the central part of the normative force for business to realise lean and agile supply chain management. In third world economies, buyers 23 have a more ecological understanding. Therefore, normative societal forces in third world economies like in Africa are concluded to be mainly originated from consumers' principled standards and environmental thoughts. Past literature reveals that buyers in third world economies have an improved ecological consciousness and are beginning to pick for lean commodities, (Gomez-Mejia, Balkin & Cardy, 2008). According to the normative demands from clients, sales and exports to the clients in overseas are the major factors that motivate companies to approve lean and agile supply operations for third world nations such as China (Cigolini et al., 2014).

2.2.4 Social exchange theory

Social Exchange theory is the conceptualization of interaction, structure, and order (Cook and Whitmeyer, 1992). Regarding exchange relations, social exchange theory has a long history in anthropology and more recently has been adopted by some sociologists (Cook and Whitmeyer, 1992). Markosky et al. (1993, p. 197) state that, "social exchange theory was developed to predict the negotiated distribution of resources in a class of networks consisting of the interrelated individual(s) or corporate actors". As such, exchange theory should be relevant to supply chain management (SCM) since a supply chain is by definition an interrelated network of suppliers and customers. Exchange theory then will be used to examine structures created as a result of activities, such as supply chain driven activities (Willer, 1999). The resulting structures are effectiveness seeking (horizontal structure) and efficiency seeking (vertical structure) depending upon the phase of development (Walters and Rainbird, 2004). The linkage between activities and structures is the need

that is created for some resource as a result of the benefit that is sought by the supply chain members (Willer, 1999; Burke, 1997; Cook and Emerson, 1978). According to Willer (1999), “exchange theory recognizes the efficacy of structure and focuses its investigation on finding the conditions in structures that produce different behaviour.

2.3 Conceptual Framework

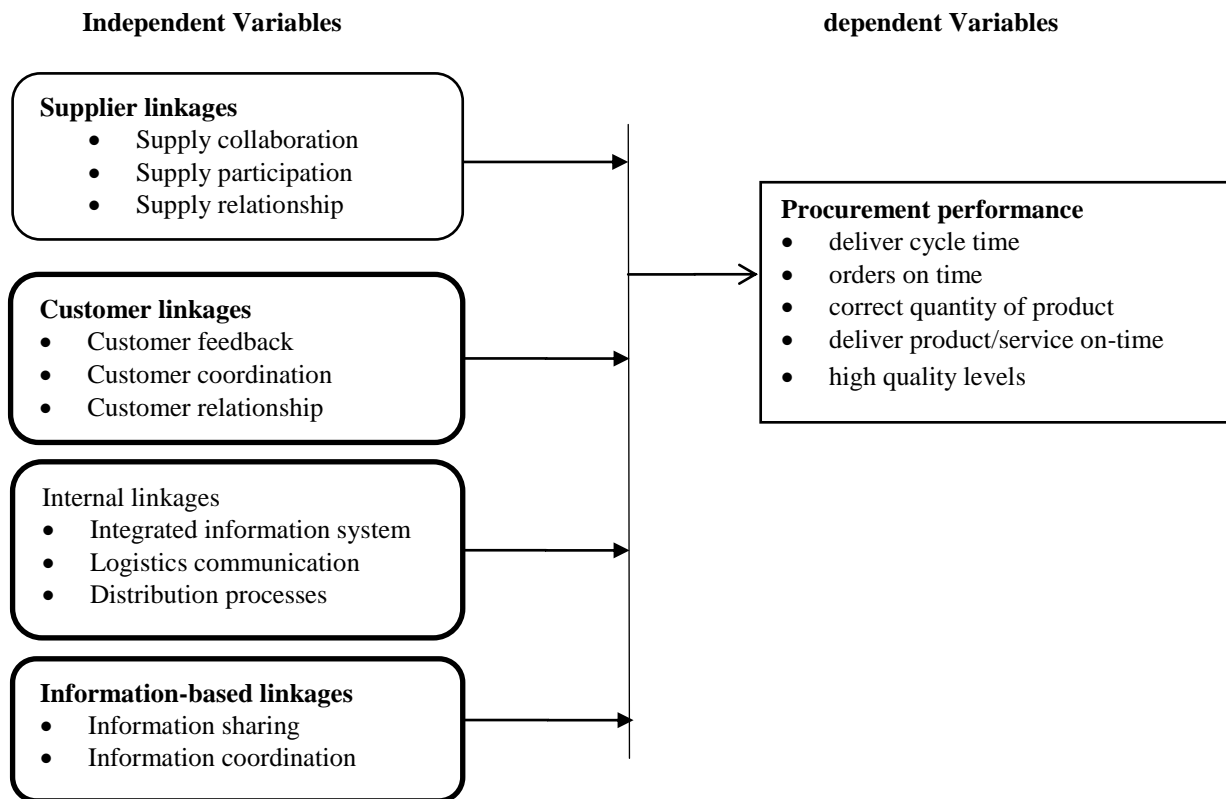


Figure 1: Conceptual framework

2.4 Empirical Review

2.4.1 Effect of customer linkages on procurement performance

The quality of customer linkages and inter-actions also known as service encounters has been recognized as a critical strategic competitive weapon for effective procurement performance (Mattila&Enz, 2002). In many cases, customer linkages are the first and only direct representation a customer has of firm customers often base their impressions of the firm on the service received thus improved procurement performance (Hartline, Maxham III, & McKee,2000; Kandampully, 2002).

It is, therefore, crucial for service managers to understand, and then find ways to effectively manage, these interactions. Customer linkages and interactions have been examined from many perspectives in the literature. For example, some researchers suggest that the quality of linkages is determined by human variables including motives, attitudes and social habits of both the service provider and the customer involved in the exchange which helps determine the quality of procurement performance (Mattila, 2002).

Kray, (2004) argues that customer linkages analysis is used to answer critical questions that management has about their efforts to improve customer satisfaction thus improved procurement performance. The most profound finding is whether a statistically significant linkage exists. Showing that there is a positive relationship is critical in building support for efforts to improve the quality of the supply chain. Another finding is the actual dollar gain in profit from improving quality. By comparing this with investments made to improve quality, management can gauge whether it is worthwhile to invest in the customer experience or to use the investments elsewhere.

A linkage analysis also helps identify the kinds of investments to make. A common output for linkage analysis is a planning spreadsheet that allows managers to input hypothetical assumptions about investment costs and improvements in

specific areas to determine the ROI. If the investments are high and the returns minimal, the model will show that it is better to invest in a different area of customer satisfaction or a different part of the organisation altogether (Frey, 2006).

Linkage analysis may also be used to assess the impact of reductions in satisfaction. Linkage analysis is a valuable task that brings reality into the satisfaction measurement process. It provides reassurance to the organisation that its emphasis on the customer contributes positively to the bottom line and positive procurement performance. Moreover, it provides the basis for making smarter decisions about investments in quality improvement (Devine, 2006).

2.4.2 Effect of supplier linkages on procurement performance

Firms are economically linked to suppliers for inputs and customers for sales. Significant events at one firm can influence the procurement performance of its directly linked suppliers and commercial customers (Cohen and Frazzini, 2008; Hertzfel, Li, Officer, and Rodgers, 2008). Linkages between suppliers go beyond directly linked suppliers and customers, however, to include a network of potentially significant economic linkages. These networks have the potential to propagate idiosyncratic shocks throughout the economy thus affecting procurement performance negatively (Acemoglu, Carvalho, Ozdaglar, and Tahbaz-Salehi, 2012).

The nature of a firm's supplier linkages, particularly its concentration, is a potential risk to firm procurement performance. With the notable exception of Kelly, Lustig and Van Nieuwerburgh (2014), little work looks at the impact of economic linkages between firms on the price of the stocks issued by those firms.

Coordinated upstream and downstream linkages in the supply chain can improve and differentiate procurement performance (Frohlich and Westbrook, 2001). In manufacturing companies, managing capabilities and resources across companies boundaries' become increasingly important and, therefore, should be an essential element in manufacturing strategy. This, however, presumes that firms integrate their production and distribution networks, instead of merely the resources of an individual company. However, an integrated supply chain system is not always the primary interest of individual members of the system. Consequently, supply chain coordination mechanisms are needed to change the behaviour of individual partners in the supply chain to improve procurement performance (Li and Wang, 2007).

Information flow significantly influences material flow behaviour. Traditionally, companies have operated in environments characterised by inadequate information (Patnayakuni *et al.*, 2006). The placing of periodic orders has been the primary information-sharing mechanism. Supply chain choices, for example, production and inventory decisions, have been made based on local information at the site of activity. This has led to operational inefficiencies in the form of excess inventories, increased operational costs and additional coordination costs (Li and Wang, 2007).

Supply chain managers increasingly recognise the need to eliminate supply chain inefficiencies and align the decisions and their execution more closely between the trading partners in order to achieve a balance between supply and demand (Charles, & Omwenga, 2018). Due to improved information availability, linkages have become an alternative for supply chain parties. Companies are increasingly striving towards supply chain management (SCM), which can be defined as the coordination of the traditional business functions and the tactics deployed across these business functions (Mentzer *et al.*, 2001).

Coordination is realised when a decision maker in the supply chain, acting rationally, makes decisions that are efficient for the supply chain as a whole (Gupta and Weerawat, 2006). Companies forming a supply chain are dependent on the performance of other organisations. The need to manage these dependencies and different resource flows are essential for a company's success (Danese *et al.*, 2004; Patnayakuni *et al.*, 2006). Supply chain coordination is a vehicle for redesigning decision rights, workflow, and resources between supply chain members to leverage improved performance (Lee, 2000). Good coordination in the supply chain reduces uncertainty in manufacturing networks (Charles, & Omwenga, 2018), which in turn translates into reduced variability. Some authors argue that coping with uncertainty is the primary motivation for supply chain coordination (Simatupang *et al.*, 2004).

2.4.3 Effect of Internal Linkages on Procurement performance

Internal linkages are defined as "the degree to which a manufacturer structures its organisational strategies, practices and processes into collaborative, synchronised processes, in order to fulfil its customers' requirements and efficiently interact with its suppliers" (Flynn *et al.*, 2010). Internal linkages are an essential practice that should be implemented before moving to achieve external integration (Vanichchinchai & Igel, 2009). Internal integration deals with integrating and

linking information among different organizational departments, creating an easy access to inventory information, developing a secure accessed, integrated database that encompasses main operational data, integrating production processes using advanced information systems, and linking production and marketing departments using computerized planning systems (Lee et al., 2007).

Internal linkages allow companies to meet and improve production scheduling through cross-functional linkages, supply and demand planning, production scheduling and planning, and customer demand management (Stratman& Roth, 2002). Internal linkages minimise conflicts and misinterpretations, facilitate the flow of information among different functions, and focus all the efforts towards fulfilling customer orders and requirements promptly. Moberg *et al.*, (2012) asserted that timely and shared information in the SC results in more accurate decisions and can be regarded as a pillar of superior performance. Shared information enables companies to enhance inventory control and management and increase inventory turnover.

2.4.4 Effect of Information-based linkages on Procurement performance

Information sharing entails costs of implementing the required technology and acquiring the necessary resources. Corsten and Kumar (2013) reported that some companies perceived that their partners did not spend as much as they did. This perception often leads to perceived inequality in return from information sharing partnerships (Corsten and Kumar 2015). Information sharing is the basis for effective collaboration in a supply chain (Lee 2000, Bowersox et al. 2003, Barratt 2004, Mentzer 2004). Although many researchers have reported that information sharing can increase supply chain performance (Ince and C, emberci 2011), firms need to implement collaborative supply chain initiatives (e.g. Vendor Manage Inventory and joint decision-making) to achieve increased supply chain performance (Lee 2000, Barratt 2004). The study of Kulp et al. (2004) on the benefits of information sharing for manufacturers shows that the best performing firms not only share information with their partners but also work closely with them to achieve superior performance derived from activities such as collaborative planning and collaborative product development. The increased availability of information along a supply chain allows firms to better coordinate their activities with their partners leading to better performance for both the supply chain as a whole and its constituent firms (Lee 2000, Lee and Whang 2000, Simchi-Levi et al. 2003). Many researchers provide evidence that sharing information such as order, demand and inventory can improve the performance of the supply chain and firms. For example, Lin et al. (2012) observed, through a simulation study, that with more detailed information shared between firms, the result was a higher reduction in total supply chain cost.

Furthermore, shared information among SC partners improves delivery performance, logistics communication, and SC planning (Trevileet al., 2014). Additionally, information sharing significantly reduces costs (Wang et al., 2016), shortens cycle time (Lin et al., 2002), and improves overall SC performance (Zhao et al., 2002).

2.5 Critical Of Related Literature

In the study of the impact of SCL on procurement performance of manufacturing firms, this is closely related with the present study with a slight difference in variables; Moberg *et al.*, (2012) empirically examined the relationship between supplier supply linkages and procurement performance of manufacturing firms in Japan and found a positive relationship between the two variables. The findings could be different in Kenya given there is a difference in GDP performance in the two countries and the difference in the industries in which they are operating.

Globally and locally, studies have been done on supply chain linkages and procurement performance. Cannon & Homburg (2001) explained how supplier management affects the firm's effectiveness and efficiency. Lenny, Demirbag, Bayraktar, Tatoglu & Zaim (2007) argued that Supplier relationship management promotes a competitive advantage by working closely with a restricted number of vendors.

Lenny *et al.* (2007) on their study on SCL practices found out that collaboration and lean practices resulted into the positive and substantial impact on procurement performance. Mettler and Rohner (2009) found that by exchanging supplier information with other hospitals, the procuring department made a decisive move to establish strategic aspects of SCL

Kamau(2011) reviewed key relationship models in supplier management and concluded that trust, communication, commitment, cooperation and mutual goals are key ingredients in a successful relationship, which in turn affect performance positively.

Wachira (2013) found that trust-based communication, risk assessment and management as well as strategic supplier partnership were the critical supplier relationship elements and had a positive relationship with procurement performance. Ratemo (2011) in his study concluded that it was evident that suppliers who failed to maintain proper records had long cycle times and increased costs in procurement.

Recent literature on supply chain linkages centres either on fundamental aspects of relationships and how they influence procurement performance. Internal, external, supply and information based, are traits generally thought out be significant in linkages. None of the studies carried out on supply chain linkages strategies and their impact on procurement performance. This study aims to bridge this gap by probing how supply chain linkages strategies affect the procurement function performance in organizations. The study seeks to answer the following research questions:

2.6 Research Gaps

Although supply chain linkages dimensions have garnered a great deal of research interest, most research studies in SRM have taken the inter-organizational level as the level of analysis, with only a few studying the interpersonal processes, spanning inter-organizational impact on general supply chain issues, such as its general promise of cost and time savings (Saleemi, 2002). Some studies argue that the critical factors for widespread usage of supply chain linkages practices are improve working relationships with suppliers generally and extracting more value from those relationships (Johnston, 2004). To this extent, therefore, continued research in this particular area is essential to gain a better understanding of the typical challenges involved and to determine how supplier capabilities drive competitive advantage since strategic partnerships are at the top of the corporate agenda of many global organisation and supply chain linkages is seen as one of the few remaining procurement topics that can still make a significant difference.

3. RESEARCH METHODOLOGY

3.1 Research design

The research design used in this study was descriptive research design in nature. It adopted qualitative and quantitative research strategies in order to find the solution to the study problem. This design was considered because it is designed to depict the participants in an accurate way. This design is the most appropriate for this study because it sought to explore and describe the data or characteristics needed for the research questions and collects a large amount of data for detailed studying.

3.2 Target Population

The target population encompassed 115 employees drawn from five major departments of EABL headquarters in Kenya; they included sales, store, purchasing, production and operations.

3.3 Sampling Frame:

The sample frame for this study included employees and suppliers who are concern directly or indirectly with procurement section which will constitute Senior managers, Middle managers, junior managers, procurement officer and supplier of EABL headquarter

3.4 Sample Size and Sampling Techniques:

The study adopted stratified random sampling which involved sampling from the partition of a population into smaller groups known as strata. Westfall (2009) stated that stratified random sampling is used when representatives from each subgroup within the population need to be represented in the sample. According to Kothari (2004), a population is stratified based on different features of the population, and a random sample is picked from each stratum. In this sampling method, the sampling error is considerably reduced. Orodho (2003) stated that each sample needs to have a non-zero probability of selection. In this study, the non-zero probability of selection of the sample size was 0.3333 since a target population of 115, a sample size of 86 employees was selected as adequate representation.

$$n_h = [N_h/N]*n$$

Where: N_h = Sample Size for the stratum

N_h = Population for the stratum

N = Total Population

n = Sample Size

3.5 Data Collection Instruments:

The study adopted the use of primary and secondary data. Primary data was collected directly from the respondents and used to analyze the relationships that were being examined in this study. Secondary data was used to acquire information on the Procurement performance of EABL. This information was obtained from previous evaluation reports carried out by the company. The data collection instruments that were used in this study was a self-administered structured questionnaire to collect quantitative data and an interview guide to collect qualitative data of the research (Kinyanjui, 2014).

3.6 Data Collection Procedures

Upon approval of the research proposal, an introductory letter was obtained from JKUAT. After that, the researcher sought an appointment with the EABL firms' management to obtain approval for the research to be conducted in the firm. Also, the researcher sought appointments and consulted with the firm management about the carrying out of the study in the specific companies.

The researcher visited the respective employees of the companies to administer the questionnaires. The instructions on how to fill out the questionnaires were carefully explained to the respondents. Sufficient time was allowed for them to respond to assure accuracy and completeness. After responding to the questionnaires, the researcher collected them for data analysis. The researcher ensured that information collected in the study was kept strictly confidential.

3.7 Pilot Testing

A pilot study was conducted before the main study to test the reliability of the instruments. The pilot study is a small scale research project that collects data from the respondent similar to those used in the full study. There are several reasons on why the pilot study is undertaken including examination of specific research aspects to ensure increased response rate, establish accuracy and appropriateness of data collection instruments, and detect any weakness in the data collection instrument (Jankoicz, 2005; Kombo & Tromp, 2009; Mugenda, 2003).

The purpose of the pilot study in this research study was to identify any probable weaknesses in the research instrument by way of assessing both its validity and reliability. The piloting of the instrument enabled the researcher to know how well the respondents were able to comprehend the questions therein.

3.7.1 Validity of Research Instruments

Validity is the degree to which a research instrument measures what it is intended to measure. It emphasises the accuracy of a measurement instrument (Cooper & Schindler, 2006). For this research, face validity and content validity were assessed.

The researcher consulted the supervisors and colleagues over the questions in the questionnaire and the suggestion and advice offered was used as a basis to modify the items in the questionnaire and make them more adaptable to the study. Also, the researcher conducted the administration of the questionnaire in person in order to assure validity.

3.7.2 Reliability of Data Collection Procedure

Reliability is defined as the measure of the degree to which a research instrument yields consistent results or data after repeated trials under different settings. Cronbach's Alpha was used in estimating the reliability of the research instrument. Studies have shown that reliability values of 0.6 to 0.70 and above are considered by many researchers as acceptable (Cooper & Schindler, 2006).

3.8 Data Analysis and Presentation

The completed questionnaires were coded and entered into the SPSS computer software in preparation for analysis. Initial screening of data was carried out by sorting the data and running frequencies and counts. Data analysis was based on the objectives and Questions of the study. Quantitative data were analysed using descriptive statistical techniques which included frequencies, means, and standard deviations. These measures of central tendency gave the expected summary statistics of the variables being tested. The findings were presented by the use of frequency distribution tables. Inferential

statistics such as Pearson Product Moment correlations were used to establish the relationships between the variables. Multiple regressions were used to establish the cause-effect relationships. Data were presented using tables and charts.

$$y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \quad \dots \dots \dots (3)$$

y- This is procurement performance

α -This is the constant of an equation.

X_1 = customer linkages

X_2 = internal linkages

X_3 = external linkages

X_4 = information based linkages

$\beta_1, \beta_2, \beta_3, \beta_4, \dots$ - These were the coefficient of regression for independent variables.

ε - This is random error term.

The study significant effect was tested using multiple regression analysis where the significant level is set at 0.05

4. RESEARCH FINDINGS AND DISCUSSIONS

4.1 Response Rate

The study distributed 86 questionnaires to five crucial departments of EABL headquarters in Kenya. Out of which 78 questionnaires from 86 were returned representing approximately 90.7% response rate (Table 4.1). This response rate falls within the confines of a large sample ($n \geq 30$). Additionally, the response rate was deemed satisfactory as suggested by Fowler (1993) who recommends 75% as a rule of the thumb for minimum responses. Further, regarding the works of Jaworski and Kohli, (1993) and Prasad *et al.* (2001), this response rate is considered satisfactory and is comparable to research on similar topics in the supply chain.

Table 4.1: Response Rate of Questionnaires

Category	Frequency	Percentage (%)
Response	78	90.7
Non-response	8	9.3
Total	86	100

Source: Research Data (2018)

4.2 Reliability analysis

Reliability analysis was done with the use of Cronbach's Alpha which measures the internal consistency by establishing whether certain items within a scale measure the same construct. Nunnally (1978) recommends that instruments used in research should have the reliability of 0.70 and above, thus forming the study's benchmark. Cronbach Alpha was established for every objective which formed a scale. The table below shows that customer linkages had the highest reliability ($\alpha=0.772$), followed by internal linkages ($\alpha=0.762$), supplier linkages ($\alpha=0.741$), procurement performance ($\alpha=0.717$) and information-based linkages ($\alpha=0.655$).

Table 4.2: Reliability analysis

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Information-based linkages	0.655	0.701	8
Supplier linkages	0.741	0.73	8
Internal linkages	0.762	0.756	8
Customer linkages	0.772	0.774	8
procurement performance	0.717	0.76	8

Source: Research Data (2018)

4.3 Descriptive statistics

The main aim of descriptive statistics is to allow the researcher to obtain clear meaningfully describe a distribution of measurements or scores using statistics or index. The kind of indices or statistics used depends on the types of variables in the study and the scale of measurements. The study analyzed descriptive statistics for the following observed variables: Procurement Performance, Information-based linkages, Supplier linkages, Internal linkages and Customer linkages.

4.3.1 Procurement Performance

This section of the study sought to establish procurement performance EABL headquarters in Kenya. The findings are as presented in table 4.4. As evidenced in the table, EABL is able to meet special customer specification (mean = 4.37, SD = 0.758). Besides, the suppliers present high quality service levels (mean = 3.97, SD = 0.939). Further, the suppliers deliver product/service on time (mean = 3.99, SD = 0.987) with low cost of product/service (mean = 3.95, SD = 1.127). Also, suppliers deliver the correct quantity of product (mean = 3.69, SD = 1.036). Additionally, the suppliers are willing to adjust product /services to meet changing needs (mean = 4.03, SD = 0.939). Moreover, the firm has fast customer complaints response rate (mean = 3.94, SD = 1.011). However, the firm is yet to attain short order to the delivery cycle time (mean = 3.24, SD = 1.229). From the above findings, it is clear that EABL has suppliers that can be relied upon to provide high-quality product/service and willing to adjust to meet customers' requirements. Besides, EABL responds promptly to customer complaints.

Table 4.4: Procurement Performance

		SD	D	N	A	SA	Mean	Std. Deviation
We are able to meet special customer specification	%	0	3.8	5.1	41	50	4.37	0.758
Our suppliers present high quality and service levels	%	2.6	5.1	14.1	48.7	29.5	3.97	0.939
Our suppliers deliver product/service on-time	%	5.1	1.3	14.1	48.7	30.8	3.99	0.987
Our suppliers have low cost of product/service	%	5.1	6.4	15.4	34.6	38.5	3.95	1.127
Our suppliers deliver the correct quantity of product	%	0	15.4	26.9	30.8	26.9	3.69	1.036
Our suppliers are willing to adjust product /services to meet changing needs	%	2.6	5.1	11.5	48.7	32.1	4.03	0.939
Our firm has short order to delivery cycle time	%	11.5	15.4	25.6	32.1	15.4	3.24	1.229
Our firm has fast customer complaints response rate	%	1.3	9	19.2	35.9	34.6	3.94	1.011
Procurement Performance							3.780	0.575

Source: Research Data (2018)

4.3.2 Customer Linkages

The researcher also found it necessary to examine customer linkages. Below are the findings in table 4.5. From the findings in the table, it is clear that the firm carries out management of customer relationships (mean = 3.97, SD = 0.95) and their clients provide their forecast demand for the firm (mean = 3.79, SD = 0.84). Customers have access in real time about the availability and product specification (mean = 4.08, SD = 0.95). Further, the firm carries out integrated management of demand with their customers (mean = 3.85, SD = 0.99). Also, customers jointly coordinate with the firm on the planning of production (mean = 3.92, SD = 0.85). Similarly, the firm and its customers engage in identifying opportunities for new markets (mean = 3.54, SD = 1.02). Further, the firm and its clients jointly do product development (mean = 3.87, SD = 0.96). Finally, the firm shares resources such as facilities with clients (mean = 3.83, SD = 0.96). The findings provide management with useful information about the important practices of customer linkages and the way in which managers can capitalise to enhance procurement performance.

Table 4.5: Customer Linkages

		SD	D	N	A	SA	Mean	Std. Deviation
Clients provide their forecast demand for the firm	%	0.0	9	20.5	52.6	17.9	3.79	0.84
Customers jointly coordinate with my firm on planning of production	%	0.0	3.8	28.2	39.7	28.2	3.92	0.85
The firm shares resources with the clients, such as facilities	%	3.8	3.8	20.5	48.7	23.1	3.83	0.96
My firm and its clients jointly do product development	%	2.6	3.8	25.6	39.7	28.2	3.87	0.96
Customers and my firm jointly identify opportunities for new markets	%	2.6	12.8	30.8	35.9	17.9	3.54	1.02
The firm carries out integrated management of demand with our customers	%	0.0	7.7	34.6	23.1	34.6	3.85	0.99
The firm carries out management of customer relationships	%	1.3	7.7	15.4	43.6	32.1	3.97	0.95
Customers have access in real time about the availability and product specifications.	%	2.6	2.6	17.9	38.5	38.5	4.08	0.95
Customer linkages							3.52	0.71

Source: Research Data (2018)

4.3.3 Supplier linkages

The study sought to establish the effect of supplier linkages on procurement performance. The results are presented in table 4.6. From the table, it is evident that the firm provides suppliers with future demand forecasts (mean = 4.05, SD= 0.924). Also, suppliers are allowed to contribute to product ideas during product development (mean = 3.95, SD = 0.896). Besides, suppliers participate in the design phase of the firm's products (mean = 3.77, SD = 0.952). Further, the firm has integrated management of demand forecast (mean = 3.76, SD = 0.996). As well, the production plans are shared with suppliers (mean = 3.74, SD = 1.037). There is also a connection between the firm's computers and that of suppliers (mean = 3.71, SD = 0.968). Moreover, the firm has a common link with suppliers on the quality of the product (mean = 3.63, SD = 1.369). Finally, the firm is aware of the production capacity of its suppliers (mean = 3.59, SD = 0.889). Findings imply that supplier linkages have the potential to influence procurement performance. Specifically, supply linkages are needed to change the behavior of individual partners in the supply chain to improve procurement performance.

Table 4.6: Supplier linkages

		SD	D	N	A	SA	Mean	Std. Deviation
The firm provides suppliers with future demand forecasts	%	5.1	0	9	56.4	29.5	4.05	0.924
The firm has a joint link with suppliers on quality of the product	%	11.5	9	21.8	20.5	37.2	3.63	1.369
The firm shares its production plans with suppliers	%	2.6	7.7	30.8	30.8	28.2	3.74	1.037
My firm has integrated management of demand forecast	%	0	11.5	29.5	30.8	28.2	3.76	0.996
The firm allows suppliers to contribute on product ideas on product improvement	%	2.6	0	26.9	41	29.5	3.95	0.896
suppliers participate in the design phase of our products	%	3.8	2.6	28.2	43.6	21.8	3.77	0.952
There is connection between the computers of our firm and our suppliers	%	2.6	9	23.1	46.2	19.2	3.71	0.968
The firm knows production capacity of our suppliers	%	1.3	7.7	37.2	38.5	15.4	3.59	0.889
Supplier Linkages							3.982	0.683

Source: Research Data (2018)

4.3.4 Internal Linkages

The study sought to establish the effect of internal linkages on procurement performance. The results are presented in table 4.7. From the findings, it is evident that the firm has a highly integrated information system (mean = 4.19, SD = 0.74). There is also an integrated system for the physical flow of the product within the firm among warehousing, production, packaging and the transport department (mean = 4.03, SD = 0.789).

Table 4.7: Internal Linkages

		SD	D	N	A	SA	Mean	Std. Deviation
There is a high level of delivery and logistics communication with customers (outbound) through information technologies	%	0	9	16.7	41	33.3	3.99	0.933
the firm has an integrated system for physical flow of the product within the firm among warehousing, production, packing and transport department	%	0	0	29.5	38.5	32.1	4.03	0.789
the firm has a highly integrated information system	%	0	2.6	11.5	50	35.9	4.19	0.74
We have an integrated system for information flow within the firm	%	3.8	3.8	15.4	48.7	28.2	3.94	0.972
the firm has an integrated database	%	6.4	19.2	17.9	26.9	29.5	3.54	1.276
There is easy access to inventory levels in our supply chain	%	2.6	21.8	17.9	34.6	23.1	3.54	1.147
the firm has easy retrieval of inventory status	%	1.3	11.5	24.4	46.2	16.7	3.65	0.937
We have a computer-based planning system between marketing and production	%	3.8	5.1	38.5	30.8	21.8	3.62	1.009
Internal Linkages							3.533	0.577

Source: Research Data (2018)

Also, there is a high level of delivery and logistics communication with customers through information technologies (mean = 3.99, SD = 0.933). Further, there is an integrated system for information flow within the firm (mean = 3.94, SD = 0.972). There is easy retrieval of inventory status by the firm (mean = 3.65, SD = 0.937) and a computer-based planning system between marketing and production (mean = 3.62, SD = 1.009). Finally, it was found out that there is easy access to inventory levels in the supply chain (mean = 3.54, SD = 1.147). The findings show internal linkages that are practised by the firm are likely to improve procurement performance.

4.3.5 IT Based Linkages

The study sought to determine the effect of information-based linkages on procurement performance in Kenyan manufacturing firms. Table 4.8 highlights the results. Basing on the results, there is an integrated database (mean = 3.82, SD = 0.977), interactive demand forecasting (mean = 3.78, SD = 1.034), electronic order system (mean = 3.68, SD = 1.145) as well as fast and easy ordering system (mean = 3.68, SD = 0.96).

Table 4.8: IT Based Linkages

		SD	D	N	A	SA	Mean	Std. Deviation
Order schedule information sharing	%	3.8	9	42.3	34.6	10.3	3.38	0.929
Order delivery information sharing	%	5.1	23.1	34.6	25.6	11.5	3.15	1.07
Interactive demand forecasting	%	2.6	11.5	15.4	44.9	25.7	3.78	1.034
Fast and easy ordering system	%	2.6	9	24.4	46.2	17.9	3.68	0.96
Electronic order system	%	5.1	11.5	20.5	35.9	26.9	3.68	1.145
Integrated database	%	2.6	5.1	26.9	38.5	26.9	3.82	0.977
Easy access to database	%	6.4	3.8	34.6	35.9	19.2	3.58	1.051
Integrated information system	%	1.3	16.7	33.3	35.9	12.8	3.42	0.961
IT-based linkages							3.69	0.60

Source: Research Data (2018)

Besides, there is an easy access to database (mean = 3.58, SD = 1.051) though it is unclear if the firm has an integrated information system (mean = 3.42, SD = 0.961), order schedule information sharing (mean = 3.38, SD = 0.929) and order delivery information sharing. Overall, the firm is yet to attain several aspects of IT-based linkages such as order delivery information sharing and order schedule information sharing. Despite that, IT-based linkages in the firm have been characterised by an electronic order system, interactive demand forecasting, easy access to the database and an integrated database.

4.4 Inferential Analysis

4.4.1 Correlation Statistics

Table 4.9 illustrates the Pearson correlation results of procurement performance, customer linkages, supplier linkages, internal linkages and IT-based linkages. The findings revealed that customer linkages were positively and significantly correlated with procurement performance ($r = 0.601$, $p < 0.01$). Further, supplier linkages were positively and significantly correlated with procurement performance ($r = 0.716$, $p < 0.01$). Similarly, internal linkages were positively correlated with procurement performance ($r = 0.681$, $p < 0.01$) and IT-based linkages were indicated to positively correlate with procurement performance ($r = 0.722$, $p < 0.01$). These findings imply that customer linkages, supplier linkages, internal linkages and IT-based linkages are expected to influence procurement performance.

Table 4.9: Correlation Statistics

		Procurement performance	customer linkages	supplier linkages	internal linkages	IT-based linkages
Procurement performance	Pearson Correlation	1				
	Sig. (2-tailed)	0.00				
customer linkages	Pearson Correlation	.601**	1			
	Sig. (2-tailed)	0.00				
supplier linkages	Pearson Correlation	.716**	.761**	1		
	Sig. (2-tailed)	0.00	0.00			
internal linkages	Pearson Correlation	.681**	.564**	.706**	1	
	Sig. (2-tailed)	0.00	0.00	0.00		
It based linkages	Pearson Correlation	.722**	.333**	.919**	.817**	1
	Sig. (2-tailed)	0.00	0.00	0.00	0.00	

** Correlation is significant at the 0.01 level (2-tailed).

Model summary

Table 4.10 illustrates the model summary of multiple regression model; the results showed that all the four predictors (customer linkages, supplier linkages, internal linkages and IT-based linkages) explained 58.1 per cent variation of procurement performance. This showed that considering the four study independent variables, there is a probability of predicting procurement performance by 58.1% (R squared = 0.581).

Table 4.10: Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.762a	0.581	0.558	0.38253	0.581	25.273	4	73	0

a Predictors: (Constant), IT-based linkages, internal linkages, customer linkages, supplier linkages

Test of Fit

Study findings in table 4.11 indicated that the above-discussed coefficient of determination was significant as evidence of F ratio of 25.273 with a p-value of 0.000 < 0.05 (level of significance). Thus, the model was fit to predict procurement performance using customer linkages, supplier linkages, internal linkages and IT-based linkages.

Table 4.11: Test of Fit

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	14.793	4	3.698	25.273	.000b
Residual	10.682	73	0.146		
Total	25.475	77			

a Dependent Variable: procurement performance

b Predictors: (Constant), IT-based linkages, internal linkages, customer linkages, supplier linkages

4.4.2 Coefficients of Estimates

The first objective of the study sought to establish the effect of customer linkages on procurement performance in Kenyan manufacturing firms. Findings showed that customer linkages had coefficients of the estimate which was significant basing on $\beta_1 = 0.152$ (p-value = 0.008 which is less than $\alpha = 0.05$). The implication is that customer linkages had a significant effect on procurement performance. This suggested that there was up to 0.152 unit increase in procurement performance for each unit increase in customer linkages. The effect of customer linkages was more than the effect attributed to the error; this was indicated by the t-test value = 1.026. Consistent with the results, Mattila & Enz, (2002) found out that the quality of customer linkages is a crucial strategic competitive weapon for effective procurement performance. Similarly, through customer linkages, customers can base their impressions of the firm on the service received thus improved procurement performance (Hartline, Maxham III, & McKee, 2000; Kandampully, 2002). To further corroborate the results, Kray, (2004) argues that customer linkages answer critical questions that the management has about their efforts to improve customer satisfaction thus improved procurement performance.

The second objective of the study examined the effect of supplier linkages on procurement performance in Kenyan manufacturing firms. The regression results showed that supplier linkages had coefficients of the estimate which was significant basing on $\beta_2 = 0.452$ (p-value = 0.024 which was less than $\alpha = 0.05$). This indicated that for each unit increase in supplier linkages, there was 0.452 units increase in procurement performance. Furthermore, the effect of supplier linkages was stated by the t-test value = 2.297 which implied that the standard error associated with the parameter was less than the effect of the parameter. In tally with the results, Westbrook, (2001) posited that coordinated supplier linkages could improve and differentiate procurement performance. On the same note, Li and Wang, (2007) are of the opinion that supplier linkages are needed to not only change the behaviour of individual partners in the supply chain but also to improve procurement performance.

The third objective of the study sought to determine the effect of internal linkages on procurement performance in Kenyan manufacturing firms. Findings showed that internal linkages had coefficients of the estimate which was significant basing on $\beta_3 = 0.389$ (p-value = 0.009 which is less than $\alpha = 0.05$) implying that internal linkages had a significant effect on procurement performance. This indicated that for each unit increase in internal linkages, there was up to 0.389 unit increase in procurement performance. The effect of internal linkages was stated by the t-test value = 2.683 which indicated that the effect of internal linkages was twice that of the error associated with it. In line with the results, Lee *et al.* (2007) found that internal linkages are the most contributing practice to procurement performance. Similarly, Stratman & Roth, (2002) stated that internal linkages in a firm facilitate the flow of information among different function hence enhancing procurement performance. In a similar vein, Moberg *et al.*, (2002) asserted that timely and shared information in the SC results in more accurate decisions and is a pillar of improved procurement performance.

Finally, the study sought to determine the effect of information-based linkages on procurement performance in Kenyan manufacturing firms. Research findings showed that IT-based linkages had coefficients of the estimate which was significant basing on $\beta_4 = 0.137$ (p-value = 0.004 which is less than $\alpha = 0.05$) implying IT based linkages had a significant effect on procurement performance. This indicates that for each unit increase in IT-based linkages, there is 0.137 units

increase in procurement performance. The results conform to a study by Lin et al. (2012) which found out that more detailed information shared between firms results in a higher reduction in total supply chain cost. Similarly, Trevileet al., (2014) established that shared information among SC partners improves delivery performance, logistics communication and SC planning. Furthermore, prior authors also indicated that information sharing is the basis for effective collaboration in a supply chain (Lee 2000, Bowersox et al. 2003, Barratt 2004, Mentzer 2004). It can, therefore, be ascertained that IT-based linkages result in improved procurement performance.

From the study, the overall model is computed as

$$Y=0.947+0.124X_1+0.381X_2+0.388X_3+0.132 X_4+ \epsilon$$

Beta coefficients of 0.947, 0.124, 0.381, 0.388 and 0.132 respectively justify the relevance of the model findings. The results indicate that a change in either if the variables will certainly lead to a positive change in procurement performance in manufacturing firms

Table 4.12: Coefficients of Estimates

	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
(Constant)	0.947	0.288		3.293	0.002
Customer linkages	0.124	0.121	0.152	1.026	0.008
Supplier linkages	0.381	0.166	0.452	2.297	0.024
Internal linkages	0.388	0.144	0.389	2.683	0.009
IT based linkages	0.132	0.294	0.137	0.45	0.004

a Dependent Variable: Procurement Performance

5. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings, conclusions derived from the findings, and the recommendations that will help in improving procurement performance. Areas of further study are also suggested.

5.2 Summary of Findings

The results on customer linkages indicated that EABL carries out management of customer relationships and engages with customers in identifying opportunities for new markets. On the other hand, clients provide their forecast demand for the firm and have access in real time about the availability of products and their specification. Further, the firm carries out integrated management of demand with their customers. Also, customers jointly coordinate with the firm on the planning of production together with product development. Moreover, the firm shares resources such as facilities with clients.

Concerning supplier linkages, the firm provides suppliers with future demand forecasts allows them to contribute on product ideas during product development. Suppliers also participate in the design phase of the firm's products. The production plans are shared with suppliers. There is a connection between the firm's computers and that of suppliers. Besides, the firm has a joint link with suppliers on the quality of the product and is aware of the production capacity of its suppliers. Also, the firm has integrated management of demand forecasts.

Furthermore, the findings on internal linkages revealed that the firm has a highly integrated information system. Besides that, there is an integrated system for the physical flow of the product within the firm among warehousing, production, packaging and the transport department. Also, there is a high level of delivery and logistics communication with customers through information technologies. Further, there is an integrated system for information flow within the firm. As well, there is the easy retrieval of inventory status by the firm and a computer-based planning system between marketing and production. Also, there is easy access to inventory levels in the supply chain.

Finally, the results on IT-based linkages established that there is an integrated database, interactive demand forecasting, electronic order system together with a fast and easy ordering system. As well, there is easy access to the database. However, the firm is yet to capitalise on an integrated information system, order schedule information sharing and order delivery information sharing.

5.3 Conclusion

The findings of the study have revealed that customer linkage is positively associated with procurement performance. It is through customer linkage that the firms' gains key strategic competitive weapon for effective procurement performance. Customer linkages are evident through the management of customer relationships and the sharing of resources such as facilities with clients. Also, through customer linkages, customers have access in real time about the availability of products and their specification. Additionally, there is a joint effort by both clients and their firm to identify opportunities for new markets.

Also, supplier linkages positively influence procurement performance. As a result of supplier linkages, the firm is aware of the production capacity of its suppliers and allows them to contribute product ideas in order to improve on the products. Also, suppliers are provided with future demand forecasts of the firm. As such, suppliers participate in the design phase of the firm's products and know the firms' production plans.

Also, the study has established that internal linkages contribute to improved procurement performance. The internal linkages have made it possible for the firm to have an integrated system for the flow of products. Further, through the linkages, customer orders and requirements are met promptly. There is also an easy retrieval of inventory status by the firm as a result of an integrated database and computer-based planning system between marketing and production. In a nutshell, the information technologies in place have facilitated the information flow among different functions thereby enhancing procurement performance.

Finally, IT-based linkages increase the availability of information along with a supply chain thereby leading to better procurement performance. This is especially the case when there is an electronic order system coupled with a fast and easy ordering system. There are however gaps regarding IT based linkages specifically with order information sharing and order delivery information sharing that need to be improved on further to facilitate further improvement in procurement performance.

5.4 Recommendations

Basing on the study findings, customer linkages are crucial to enhancing procurement performance. It is therefore recommended that firms involve customers in the design phase of its products. In such a case, clients will be able to give valuable input on the products specifications as the products are intended to meet their needs. Also, it is crucial for firms to carry out integrated management of demand with their customers and ensure that customers have real-time access regarding product availability and specification. Also, it will be beneficial to the firm if it jointly coordinates with customers in product development.

The results of the study are indicative of a positive association between supplier linkages and procurement performance. It is therefore imperative for firms to provide their suppliers with future demand forecasts so that they can develop the capacity to meet the demand. Suppliers should also be allowed to contribute product ideas and also participate in the design phase of the firms' product for product improvement. With the above considerations, procurement performance will increase.

Also, internal linkages have been shown to increase procurement performance. There is thus need for firms to integrate their system so that they can have information flow within the firm. Specifically, there is a need for a high level of delivery and logistic communication so that there is the easy retrieval of inventory status. Further, a computer-based planning system between marketing and production is needed so that the firm can have production scheduling and planning and customer demand management.

Finally, since IT based linkages result in increased procurement performance, it is recommended that firms engage in the implementation of collaborative procurement initiatives such as order schedule and delivery information sharing to improve further on procurement performance. Besides, firms should not only share information with their partners but should also work closely with them to achieve superior performance derived from activities such as interactive demand forecasting and collaborative product development.

Further Research Recommendations

This study has determined the effect of supply chain linkages and procurement performance in manufacturing firms: a case of Kenya breweries limited. The sample was drawn from EABL headquarters in Kenya. Thus this study may be

limited in its generalizability of the findings. Further, the study included only four factors; there could be some other relevant factors that may be perceived as necessary by supply chain partners but were excluded from this study. Future researches, therefore, may consider more factors, like environmental uncertainty and company environment. Finally, conducting a replication study in other industries is needed in order to establish whether the findings of the study hold.

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