

The Effect of Procurement on Supply Chain Performance among ISO Certified Companies in Kenya

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Abstract: The need to be competitive, flexible, and efficient, maintain the bottom line and survive in the market has forced companies to enter into collaborative relationships with their suppliers and their customers. This has resulted in changes to the approach to procurement and supply chain management. ISO certified firms are also required to maintain top quality performance standards at all level. The purpose of this study was to establish the nature of the relationship between the procurement and supply chain performance among ISO certified companies in Kenya. the objectives of the study were:-procurement information sharing; procurement decision synchronization; procurement incentive alignment; purchasing risk taking; strategic purchasing practices and purchasing knowledge and skills which forms the independent variables of the study. Supply chain performance was the dependent variable. This study used descriptive survey design focusing on all the 39 ISO certified companies in Kenya that were certified by the end of December, 2016. The target respondents were 117 employees in management positions of these companies. This study was, therefore a census since all the ISO certified companies participated. The data used for this study was captured by means of a questionnaire that utilized the Likert scale of score ranging from 1 to 5. Questionnaires were delivered to employees in management positions in the procurement department because they are involved in the day to day running of procurement. The relationship between the variables was done using a multiple linear regression model. The data collected was analyzed using SPSS version 21. Multicollinearity, Homoscedasticity and normality of the dependent variable tests were conducted to test whether the model adheres to the OLS assumptions. The study findings indicate that procurement information sharing, decision synchronization and strategic purchasing practices positively and significantly affect supply chain performance while procurement incentive alignment positively but not significantly affect supply chain performance. The study concluded that procurement information sharing; procurement decision synchronization; procurement incentive alignment; purchasing risk taking; strategic purchasing practices positively enhances the performance ISO certified companies in Kenya. The study recommends that the procurement management should put up systems to link information systems. There is also need to carefully invest in the right information infrastructure. The organizations should put up mechanisms for managing external relationships with the organization. Moreover, it should ensure that the degree of sharing procurement information is high as well as establishing a good working environment as it enhances collaborative working since procurement information sharing affects performance significantly.

Keywords: Procurement information sharing, procurement decision synchronization, procurement incentive alignment and strategic purchasing practices.

I. INTRODUCTION

Background:

This chapter contains the background of the study, statement of the problem to be investigated, research objectives, questions to be answered by the study, significance of the study, limitations of the study and the scope of the study. The need to be competitive, flexible, and efficient, maintain the bottom line and survive in the market has forced companies to enter into collaborative relationships with their suppliers and their customers (Lammings et al., 2000). Modern competitive situations where competitive battles are fought along the network of cooperating companies have brought about this behaviour among firms. The fact that these competitive battles are fought along supply chains mean that firm is as strong as its weakest supply chain partner (Macbeth and Purchase, 2004). This chain-to-chain competition is replacing the traditional enterprise-to-enterprise competition even in the less developed economies, though to a lower as scale compared to the advanced economies.

The modern forward-looking and quality-driven enterprises today are forced to collaborate with suppliers, customers and sometimes competitors; share information and knowledge with the purpose of creating a collaborative a procurement process and a supply chain that will provide a launch pad for competing effectively if not leading the particular industry they play. Collaboration through procurement and supply chain management is a value adding resource for firms that seek to reduce cost, increase their agility and satisfy their clients (Spekman et al., 1994). Collaborative procurement and supply chain relationships revitalize information flows. These flows contribute to the lowering of enterprise operational expenses and force collaborating partners to proactively adjust their operations to the market trends, therefore, helping to mitigate losses while increase supply chain agility (Giunipero and Flint, 2001). Evidence from Uganda, a developing economy, contends that firms tend to suffer from collaborative constraints, unprofessional procurement practices, and information technology inaccessibility. This situation has resulted into high transaction and order processing costs, inadequate access to key information, ineffective logistics and production support, which limiting the firms' abilities to grow and reap from the resultant economies of scale needed in effective supply chain performance (Ntayi and Etyaa, 2012).

According to Guchu and Mwanaongoro (2012) ISO certified companies have clearly set out requirements of quality that they must achieve and maintains in order to remain certified. Further, the ISO certification provides the consumer with an expectation of the quality they should get. The quality expected is not just on the products themselves, but also cover issues like order processing time, responsiveness to market dynamics among others. This study is to investigate how procurement practices help the ISO certified companies in Kenya to achieve such quality through the supply chain.

The Concept of Procurement Management:

The Chartered Institute of Purchasing and Supply (2006) defines procurement as the business management function that ensures identification, sourcing, access and management of the external resources that an organization needs or may need to fulfill its strategic objectives. Procurement is done in order to explore supply market opportunities with the aim of implementing sourcing strategies will deliver the best possible supply outcomes to the organization, the stakeholders and customers. Procurement is the acquisition of goods, services or works from an external source. According to Appley (1967) management is the accomplishment of results through the efforts of other people. Management, therefore, consists of guiding human and physical resources into dynamic, hard-hitting organization unit that attains its objectives to the satisfaction of those served and with a high degree of morale and sense of attainment on the part of those rendering the service. Lundy (1957) had earlier provided the definition of management as principally the task of planning, coordinating, motivating and controlling the efforts of others towards a specific objective. Procurement management is an intersection between procurement and management. Procurement management involves planning, soliciting sources, choosing a source, administering the contract, and closing out the contract. Just like in management, project management involves the following six interactive processes: procurement planning, solicitation planning, solicitation, source selection, contract administration, and contract close-out (PMBOK, 1996).

The Concept of Supply Chain Performance:

Chopra and Meindl (2004) posit that a supply chain consists of all parties involved, directly or indirectly, in the fulfillment of a customer's request. The supply chain does not just include the manufacturer and suppliers, but also the transporters, warehouses, retailers, and the customers themselves. Within organizations, the supply chain includes all

functions are involved in receiving and filling a customer request. The functions include new product development, marketing, operations, distribution, finance, and customer service among others. Performance is a concept whose definition is very flexible its user allows the context to take care of the definition. Business Dictionary (2010) defines business performance as the accomplishment of a given task measured against preset known standards of accuracy, completeness, cost, and speed. Business performance excellence is achieved when an organization is generating the maximum level of profitability possible given the human, financial, capital, and other resources it possesses. (Luftig, 1998). Supply chain performance refers to the accomplishment of (a) given task(s) measured against preset explicit standards of accuracy, completeness, cost and speed by the supply chain system of an organization (Gunasekaran, Patel and McGaughey, 2004). Supply chain management and performance is a major component of competitive strategy to enhance organizational productivity and profitability. According to Thomas and Griffin (1996) the concept of supply chain management represents the most advanced state in the evolutionary development of purchasing, procurement and other supply chain activities.

Linking Procurement and Supply Chain Performance:

According to Carr (1996), the main constructs of procurement practices are strategic purchasing, risk taking and knowledge and skills. Strategic purchasing involves planning, evaluating, implementing and controlling the operational activities of the purchasing function in an effort to meet the objectives of the firm (Carr and Smeltzer, 1997). Handling strategic purchasing, there is need for a high degree of purchasing knowledge and skills. Having the necessary skills to interpret changes in the supplier market, offer technical assistance and assist in developing suppliers are some of the necessary skills for strategic purchasing (Keough, 1994). These skills would allow the purchasing function to offer valuable input to the firm's planning process. As companies attempt to shift the direction of their purchasing functions from a clerical to a more strategic organization, they must recognize the importance of Collaborative Relationships skill development for purchasing professionals in the areas of general management skills and technical skills (Stuart, 1993). Improved purchasing practices improve the performance of a firm through internal and external customer satisfaction. We can therefore infer that when firms in a supply chain improve procurement practices, performance in the supply chain will improve.

ISO Certification in Kenya:

Guchu and Mwanaongoro (2012) provide a detailed procedure companies in Kenya follow to get ISO certification. First there must be management commitment and an ISO project team in place. The management should believe in the benefits of being registered and be actively involved in registration process. Quality policy and objectives have to be specified by the management and made clear to all levels of the organization. The ISO project team should be formed for developing and implementing an effective quality management system. The second stage, self assessment, involves evaluation of existing quality manual so as to formalize the way things are done, demonstrate the way things are done, demonstrate things are done right, monitor what is being done and improve. This stage sets baseline audit which consists of adequacy and compliance audits. In stage three, awareness and training is done in which all personnel involved in tasks that affect quality are trained on development of quality manuals, procedures, identification and implementation of improvement processes and on how to audit compliance with the Quality Management System. The fourth stage involves developing an action plan after which multiple-tiered quality management process and documentation is commonly adopted (Guchu and Mwanaongoro, 2012).

The sixth stage involves the Selection of a certification body. The key elements to consider when selecting the certification body include; customers' expectations and preferences; government regulations; international recognition; auditor's knowledge, experience and their qualifications. After identifying and selecting the certification body, the company can then apply for registration (Guchu and Mwanaongoro, 2012).

The seventh stage involves defining responsibilities and authority of all personnel managing, performing and verifying activities which affect the quality system. Job descriptions and specifications should be prepared for each level of staff including the operators in each section. This will lead to the eighth stage which involves Training operators and implementing the quality management system. After this the firm conducts an internal quality audit and the management reviews the audit results. The tenth (the final stage) involves applying for the on-site certification audit. If certification is awarded, continual improvement of the quality management system should be done. In Kenya ISO certification is done by

Kenya Bureau of Standards, SGS, Bureau Veritas Quality International and CVA international (Guchu and Mwanaongoro, 2012). Geraedt, Montenarie and Hendrik (1999) argue that ISO certification provides an integrated quality system that is of great strategic importance. Implementation of ISO 9000 standards within all processes of management, including procurement management, ensures high performance even in the supply chain system of a firm for the focuses benefit of the customer.

Statement of the Problem:

Theories related to supply chain management, like Agency theory (Jensen & Meckling, 1976), transaction cost theory (Coase, 1937), and network theory (Thorelli, 1986) and resource dependence theory (Pfeffer and Salancik, 1978) indicate that there is a close relationship between procurement practices and the supply chain performance of a company. The suggestion is that when the supply chain is performing highly, then the procurement practices are also well structured. There are variations concerning how procurement information sharing, procurement decision synchronization, procurement incentive alignment, affect supply chain performance. A study by Ntayi and Etyaa (2012), for instance, found that malpractices in procurement caused failures in the supply chains of firms in Uganda. Giunipero and Flint (2001) had earlier found that among European countries the strong collaborative nature of procurement resulted in superior performance of the supply chain. On the contrary, Thawiwinyu and Laptaned (2012) did not find a significant relationship between procurement practices and supply chain performance. Such variations, point out to the need to establish the relationship between procurement practices and supply chain performance in Kenyan firms that are focused on effective procurement management like the ISO certified firms. Given that there is no known study done to explain this relationship in ISO certified companies in Kenya, this study was designed and purposed to fill this research gap.

Objectives of the Study:

General objectives:

The general objective of this study was to establish the effect of procurement on supply chain performance among ISO certified companies in Kenya.

Specific objectives of the study:

The following four specific objectives guide this study:

1. To establish the effect of procurement information sharing on supply chain performance
2. To establish the effect of procurement decision synchronization on supply chain performance
3. To establish the effect of procurement incentive alignment on supply chain performance
4. To establish the effect of strategic purchasing on supply chain performance

Research Questions:

The following research questions guided the research:

1. What is the effect of procurement information sharing on supply chain performance?
2. What is the effect of procurement decision synchronization on supply chain performance?
3. What is the effect of procurement incentive alignment on supply chain performance?
4. What is the effect of strategic purchasing on supply chain performance?

Justification of the study:

Scholars of procurement predict that implementation of procurement among firms enhances the performance of the supply chain through timeliness; cost; flexibility; order fulfillment and customer satisfaction. However empirical research shows the relationship between procurement and supply chain performance is not as universal as suggested-it may vary according to the firm in question. ISO certified firms are required to be value driven within all processes of their management in order to satisfy the dynamic needs of the customer for them to remain relevant in the market and indeed remain certified. A research gap exists when it comes to establishing how the nature of the procurement in firms affect

their supply chain in the endeavor to meet the needs of customer among the ISO certified companies in Kenya. The need to fill up this gap justifies this study. The success of this research will be of benefit to the following people in the identified ways.

ISO certified companies in Kenya

The ISO certified companies will get an assessment of how procurement affects supply chain performance within their management policy. Further, by assessing the relationship between procurement and supply chain performance, the ISO certified companies will be able to get results that will help them project future expectation concerning procurement and supply chain performance. This will then stimulate relevant and tailored policy regarding procurement as a way of safeguarding the bottom line.

Scholars and Researchers:

Scholars and researchers will find the study useful since it will fill up the research gap of the need for providing an explanation of how procurement is affecting supply chain performance and, further, the nature of the effect will be established with regard to ISO certified companies in the Kenyan environment. This will then provide scholarly evidence that will, not only contribute to the scholarly discussions concerning procurement but will also provide citation material to later researchers on topics that will find this research valuable.

Other Businesses and Companies:

Businesses that have not implemented strong procurement processes management practices will also benefit from this research. The findings will provide answers toward their possible skepticism concerning procurement practices. The benefits of procurement towards supply chain performance will provide an attraction to such firms and the established relationship will be an answer that will not only allay their fears, but will further explain why the finding are as found. A firm implementing procurement practices will then implement it in a wiser and informed manner especially with supply chain performance in picture.

Stakeholders in the ISO certified companies:

This study will further benefit the stakeholders in the ISO certified bearing in mind that a business is a loose nexus of different people with varied interests. The main unifying interest among the stakeholders is the continued survival of the business in a profitable manner at the least. This study will highlight the benefits of using the beneficial ways of relating procurement and supply chain management as a mechanism of ensuring higher financial performance.

2. LITERATURE REVIEW

Introduction:

A literature review is the process of exploring the existing literature to ascertain what has been written or otherwise published on a research topic (Collis & Hussey, 2003). In order to carry out a literature review, one would initially need to search for the relevant literature, the aim of which is to identify as many items of relevant secondary information as possible such as books, journal articles, conference papers, reports, archives and published statistics (Collis & Hussey, 2003). This section presents theoretical and empirical literature existing on the topic under study. The conceptual framework is also presented. The same literature is critiqued and research gaps identified from it. The summary of literature is then presented. This chapter presents the conceptual framework and the literature review. The conceptual framework shows how procurement information sharing, procurement decision synchronization, procurement incentive alignment and strategic purchasing practices relate to supply chain performance.

Theoretical Literature Review:

A theoretical framework guides the researcher in determining what statistical variables need to be measured. Thus the theoretical literature helps the researcher to see clearly the variables of the study, provides a general framework for data analysis and helps in selection of applicable research design (Ngumi, 2013). Six theories have been used to explain the relationship between procurement and supply chain performance. These theories are: the agency theory which shows the effect of the principal-agent relationship on supply chain performance; the transaction cost theory which explains why companies expand or source out activities to the external environment. The network theory explains why entities network

in manners like supply chains while the resource dependence theory shows how firms need to manage the interdependencies between them. Other theories are the institutional theory and the strategic choice theory.

The principal-agent theory:

The principal-agent theory is the first theory that provides basis to this study. Jensen & Meckling (1976) defined agency relationship as a contract under which one or more persons (the principals) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. If both parties to the relationship are utility maximizers, there is good reason to assume that the agent will not always act in the best interests of the principal. The theory, further, posits that the principal can limit divergences from his interest by establishing appropriate incentives for the agent and by incurring monitoring costs designed to limit the aberrant activities of the agent.

Agency theory therefore is mainly concerned with resolving two problems that frequently occur in agency relationships. The first is the agency problem that arises when (a) the desires or goals of the principal and agent conflict and when (b) it is difficult or expensive for the principle to verify what the agent is actually doing. The problem here is that the principal cannot verify that the agent has behaved appropriately. The second is the problem of risk sharing that arises when the principal and agent have different attitudes towards risk. The problem here is that the principal and the agent may prefer different actions because of the different risk preferences. The question is whether it is possible to get a model that can bring harmony between the principals and the agents (Jensen & Meckling, 1976). The agency theory is relevant to this study since it recognizes that procurement and supply chain management involves delegation of activities and decision making. The theory helps in understanding the variable of decision synchronization which states that decision synchronization can be achieved by teaming up for competitiveness through information sharing, joint decision making, and distributing returns amongst themselves after meeting final customer desires with superior services.

Resource dependence theory:

Resource dependence theory explains how some firms become reliant on others for needed inputs such as goods and materials, and how such relationships can be managed (Pfeffer and Salancik, 1978). As supply chain members work together closely, they become more dependent on each other. Within the traditional supply chains, each member avoids becoming overly dependent on others while attempting to make other firms dependent upon the member. This theory, in contrast to traditional supply chain outlook, recognizes that taking advantage of resource dependencies can have unintended and grave consequences. Resource dependence theory states that dependencies should be used to create mutual forbearance and trust but not to drive aggressive exploitation of one chain member by another. Therefore the theory is relevant to this study since it links the variable of Procurement Information sharing s which provides an important understanding of the coordination of information between internal and external customers, suppliers, distributors, and other partners in a supply chain.

Institutional theory:

Institutional theory was presented by DiMaggio and Powell (1983). This theory emphasizes the role of the subtle and evolving environmental pressures on firm activities. A foundational element of institutional theory is that organizations become homogeneous as a function of isomorphism over time. Traditional supply chains rely heavily on industry recipes and best practices to guide supply chain management activities. In contrast, best value supply chains use industry recipes and best practices to inform, but not dictate, supply chain management activities. Such chains recognize the potential folly of imitation. According to this theory best value supply chains should focus on a formula for creating best value supply chains in any given industry and apply the formula across different industries and countries for competitive advantage. This theory suggests that organizations should be able to come up with unique combinations of supply chain activities that will make them uniquely competitive in their market. This theory states that best value supply chains should focus on a formula for creating best value supply chains in any given industry and apply the formula across different industries and countries for competitive advantage. Thus, it links the variable of strategic purchasing which advocates for the incorporation of suppliers in the planning and development of strategic goals of the firm.

Strategic choice theory:

Strategic choice contends that managers' decisions play a tremendous role in organizational success or failure (Child, 1972). The main issue in strategic choice theory is strategic renewal and repositioning. The assumption is that firms can

enact and actively shape their environment. This theory suggests that within best value supply chains, strategic decisions are made with concern for the chain as the primary driver. This strategic supply chain management opens the door to a uniquely blended strategy that transcends the firm and makes the chain more agile and with higher adaptability translating to high performance. This theory links the variable of strategic purchasing which stresses the importance for the development of purchasing strategies to determine whether procurement can be done or not for key commodities and purchases. Purchasing requires collaboration with the suppliers through planning of supplier goals. Strategic choice theory helps in understanding strategic decisions undertaken with concern for the chain as the primary driver and therefore it is relevant the study.

Conceptual Framework:

This research has two main variables: supply chain performance and procurement management. Procurement management is the independent variable while supply chain performance is the dependent variable. Procurement management was operationalized by: procurement information sharing; procurement decision synchronization; procurement incentive alignment and strategic purchasing practices. Fig: 2.1 below show how the variables relate figuratively.

Independent Variables

Dependent variable

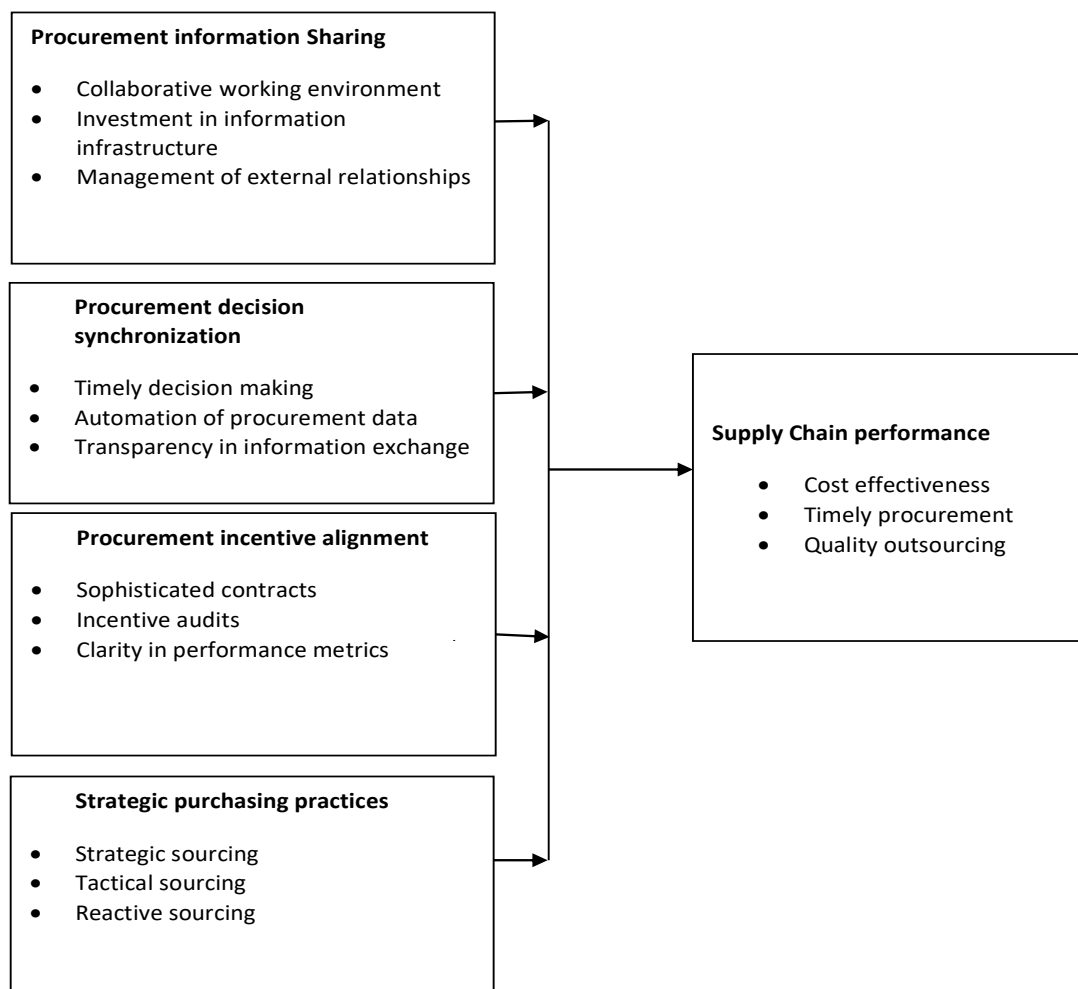


Figure 2.1: Conceptual Frame work

Procurement Information Sharing:

According to McLaren, Head and Yuan (2011), Procurement Information sharing s are used to coordinate information between internal and external customers, suppliers, distributors, and other partners in a supply chain. The most important sign for the success of any installed information system in a supply chain is how well this system has been able to support

the activities of that supply chain, reduce buffer inventory stocks, reduce lead times, increase sales and improve customer services. Procurement Information sharing s can be useful in synchronizing all the activities of the entirety of active members of a supply chain including production, storage and shipment, and can also help in forecasting future demands and proper planning (Gharabaghi, Rabbani, Hesami, 2004). Procurement Information sharing s are able to increase operational efficiency, effectiveness and flexibility, improve customer services, and reduce both costs and problems (McLaren, Head and Yuan, 2011). These benefits of SCIS are followed by higher accuracy, faster processing, higher visibility and immediate availability (Wibowo *et al*, 1999). In addition, information systems are integral parts of agile supply chain which can increase the speed and flexibility of it, (Rajabzade *et al*, and 2013). In order to achieve the highest performance level, supply chain strategies should be aligned with information systems strategies. In this situation, information systems meet the supply chain requirements in the best possible manner (Torabizadeh *et al*, 2012). However, not information technology values can be created only by using technology but applying managerial skills for using information plays an important role in value creation through IT. Moreover, the size of an organization, its successes, uncertainties, support of the senior management and the pressure applied by other partners play an important role in the effect that information technologies have on supply chains, (Dong *et al*, 2009)).

Decision Synchronization:

According to (Simatupang & Sridharan, 2008) argues that decision synchronization can be achieved by teaming up for competitiveness through information sharing, joint decision making, and distributing returns amongst themselves after meeting final customer desires with superior services. Cao and Zhang (2011) notes that businesses are seeking to enhance competence and understanding of partnership, in order to harness resources and knowledge of suppliers and customers by working together with supply chain allies. Fawcett, Stephen and Amydee (2012) states that decision collaboration can be essential capability that can provide differential performance. Nyaga, Whipple and Lynch (2010) argue that it's desirable for supply chain associates to focus on value creation for clients in business through creativity and flexibility in their operations. They underline that to realize this goal might be a challenge for individual organizations, but can be attained through decision synchronization of supply chain relationships. Therefore, entities are focusing on collaborative exchanges with supply chain partners so as to enhance efficiencies, flexibility, and viable competitiveness. Hudnurkar, Jakhar and Rathod (2014) assert that collaborative behavior and activities in supply chain management have gained considerable significance.

Procurement Incentive Alignment:

Companies can align incentives in supply chains is by changing contracts with partner firms. When misalignment stems from hidden actions, executives can bring those actions to the surface unhide them, as it were by creating a contract that rewards or penalizes partners based on outcomes. To return to an earlier example, Whirlpool may not be able to see what Sears's salespeople do to promote the manufacturer's washing machines, but it can track the outcome of their efforts namely, increased or decreased sales—and draw up agreements to reward them accordingly, (Harvard, 2004).

Companies can sometimes use trust-based mechanisms to prevent incentive problems from cropping up in supply chains. That may sound like a contradiction, since firms are more likely to trust each other when their incentives are in line. When companies realize from the outset that working with partners will not be easy, though, they can use intermediaries to prevent supply chains from breaking down. The use of a middleman has become more popular as American and European companies have outsourced manufacturing to developing countries, where legal contracts are often harder to enforce, (Harvard, 2004). When Western companies link up with Asian manufacturers or component suppliers, each party has misgivings about the other's interests. The importers are convinced that the vendors won't deliver on time, can't produce consistent quality, and will give greater priority to companies that will pay higher prices. They also fear that the contractors will reduce their costs by bribing government officials or using child labor. As Nike found, those dubious practices give importers, rather than their suppliers, bad reputations. For their part, suppliers fear that importers might reject products. Since importers enter into contracts six to nine months in advance of delivery, vendors doubt companies' ability to predict consumer demand accurately. They worry that demand for products will be lower than anticipated and that importers will reject consignments, pretending that the quality wasn't up to snuff. Under those circumstances, the presence of an intermediary can help align the supply chain objectives, (Harvard, 2004).

Strategic Purchasing Practices:

Strategic purchasing pertains developing purchasing strategies to determine whether procurement can be done or not for key commodities and purchases. To fulfil strategic purchasing it is advisable to take the strategic goals of the firm in due consideration. Such purchasing would also require collaboration with the suppliers necessitating the planning of supplier goals. According to Rob *et al*, (2005) extreme competitive pressures have forced companies to re-think their approach to managing suppliers and their supply base. An increasing focus on core competencies, and the concomitant increase in outsourcing of components and services, has also placed greater emphasis on supplier management. In addition, much of the traditional in-house development activities have been pushed onto suppliers. Purchasing is thus increasingly regarded as a strategic weapon, centered on its ability to create collaborative relationships for firm advantage. Partnerships with suppliers can have a strong positive influence on firm performance through the development of joint resources and the exchange of valuable knowledge with these individual partners. In practice, many firms fail to realize these benefits when they implement sourcing agreements at a lower negotiated price. They fail to follow through with the relational processes that capture benefits over the course of the contract. The ability to extract benefits from supplier relationships is linked to the way these relationships are managed.

Furthermore, integration with suppliers is an effective strategy for improving business performance. Integration of suppliers at the operational level makes the supplier an extension of the firm's factory, emphasizing continuity of supply. Mechanisms for facilitating this integration include the participation of suppliers in design, procurement, and production stages, as well as the use of ordering systems and information technology to exchange information. These linkages permit increased coordination with suppliers at a tactical level, enabling the firm to deal more effectively with the complexity and uncertainty present in their environment. The supply base flexibility reflects the degree to which a firm's key suppliers are able to customize products, be responsive to delivery changes, and adapt to the needs of the buyer. Those relationships characterized by close interactions and successful process integration between buyer and supplier are better able to create, coordinate and protect joint resources for a sustained competitive advantage. Thus, it is not enough for a firm to possess a strategic purchasing orientation, they must also create conditions which allow the buyer and supplier to contribute and develop the relationship. Various supply management practices facilitate this process, Rob *et al*, (2005).

Empirical Literature Review:

This subsection provides a discussion of the empirical findings concerning the relationships among the variables of this study.

Procurement Information Sharing and Supply Chain Performance:

Ki-Chan (2002) conducted a study whose aim was to study the effects of IT on supply chain performance. The data used for the study were collected from major suppliers of two automobile companies in Korea using questionnaires and face-to-face interviews. The study found that First, electronic linkage between the suppliers and automobile manufacturers increased exchange of information about transaction processing, new product, purchasing, sales, and inventory. The sharing of information sharing increased the extent of coordination among the firms in the supply chain. The study found out that IT had a significant impact on sales, profit, and modularization, but not on cost savings

In another study Hsin, Yao-Chuan and Che-Hao (2013) purposed to find out the relationship between e-procurement and supply chain performance. The study was a survey using face-to-face interviews with questionnaires used to collected data from 108 Taiwanese enterprises. The study found that partner relationships, information sharing, and supply chain integration contributed positively to supply chain performance. Quesada, Gazo and Sanchez (2010) conducted a case study in the US Pallet Industry to find out the critical factors affecting supply chain management. This study was a survey in which questionnaires were sent to 1,500 companies in the US pallet industry. The findings showed that information technology (IT) had a positive effect on value-added process and that information technology can be a powerful tool when reducing inventory and improving supply chain responsiveness.

Decision Synchronization and Supply Chain Performance:

Eyaa, Ntayi and Namagembe (2010) did a study to examine the relationship between collaborative relationships and SME supply chain performance in Uganda. Information sharing was one of the variables in collaborative relationships. The study was carried out using a cross-sectional and quantitative research design. The data required were collected from

people handling or overseeing procurement activities in the selected firms. A self-administered questionnaire was used to collect the data. The study used a sample of 306 firms from Nakawa Division in Uganda out of which 250 fully filled questionnaires were collected for analysis. The study found a significant relationship between information sharing and supply chain performance.

In another study, Sridharan and Simatupang (2009) empirically examined managerial perceptions on the relationship between supply chain collaboration practice and operational performance. In this study decision synchronization was one of the variables being assessed. A survey was employed to assess the relationship between collaborative practice and operational performance in New Zealand companies. Questionnaires were sent to general managers, marketing managers, logistics managers, and purchasing managers of a sample of 400 firms. The study found that decision synchronization affected supply chain performance. A study by Saengadsapaviriya (2011) investigated the supply chain performance of regional Longan growers under Thailand–China FTA. Fifty-five hundred Longan growers in Thailand (Northern and Eastern areas) were selected for the study and questionnaires were sent to them for data collection. The study showed that Longan growers in eastern area had stronger good supply chain performance than those in northern area in four factors due to the collaborative and synchronized nature of their supply chain processes and business strategy.

Procurement Incentive Alignment and Supply Chain Performance:

Simatupang and Ramaswami (2005) conducted a study purposed to propose an integrative framework for supply chain collaboration which is based on the reciprocal approach. The reciprocal approach was adopted to capture the interaction phenomenon of different features of collaboration in attaining overall supply chain performance. The study found that incentive alignment contributed to higher performance of the supply chain of a firm.

Oliva and Watson (2009) conducted a research whose goal was to investigate how cross-functional alignment affected supply chain performance. This study was a case study of sales and operations planning with the functions used in the study being sales, marketing, finance, and operations in a company called Leitax. The study found out that at Leitax, there was misalignment of most of the activities that directly and indirectly affected their supply chain performance. The study recommended that Leitax should align all its functions including supply chain and procurement function incentives in order to improve its financial performance. This indicated that alignment of the incentives of supply chain activities and procurement had an effect on supply chain performance. Ahmed and Ullah (2012) examined the characteristics, requirements, benefits, barriers and applicability of various collaborative relationships to do with procurement and supply chain management. The study utilized secondary data. One of the areas of collaboration that was investigated was collaborative transaction management highly dependent upon the ability to standardize transactions and utilize technology support tools to exchange data automatically. The study found a close relationship between such collaboration and the performance of the supply chain.

Strategic Purchasing Practices and Supply Chain Performance:

Coban (2012) examined the relationship between strategic purchasing and supply chain performance measured by vendor performance, material quality, and inventory levels of the bottled water industry in Turkey. Data for the study were obtained directly from the individuals who were in charge of managing purchasing function of the bottled water companies by using a self-administered questionnaire. A sample 32 respondents of 78 brands were analyzed. In order to determine the impact of strategic purchasing activities on supply chain performance, regression analysis was performed. The study found out that strategic purchasing activities in the bottled water industry had positive effects on vendor performance and material quality. However, they had negative effect on inventory levels, that is, inventories reduced due to strategic purchasing activities.

Thawiwinyu and Laptaned (2012) conducted a survey study understand the impact of purchasing on supply chain performance through investigating current and emerging e-procurement practices, identifying the critical elements of strategic sourcing and assessing the impact of strategic sourcing and e-procurement on firm and supply management performance through empirical investigation. Data collection of this research was done through a questionnaire, supplemented by oral interviews. The population of the study was made up of the all companies that composed the supply chain of GSK Electronics (Thailand) Co., Ltd. that dealt in electronics. 40 copies of questionnaire were distributed to cover all of GSK's partners were analyzed using Pearson product moment correlation and linear regression analysis. The

results indicated that strategic sourcing and e-procurement were not effective in improving flexibility and, therefore, did not lead to improved supply chain performance.

Sukati, Hamid, Baharun, and Yusoff (2012) carried out a study to explore the relationship between supply chain management strategy and chain management practices on supply chain performance. The study was a survey in which data was collected using questionnaire which was administered to a total sample of 200 managers classified as corporate executive, purchasing, manufacturing/production, distribution/logistic, SCM, transportation, material, and operations from Malaysia manufacturing industry. The sample selection was based on convenience sampling. The finding showed that supply chain management practices have a statistically significant relationship with supply chain performance.

Research Gaps:

The available literature review seems to have varied positions about the relationship between procurement practices and the performance of the supply chain of an organization. Generally both theory and empirical research show that procurement is closely related to the performance of the supply chain. However, there is no general agreement concerning how each of the variables, namely, procurement information sharing, procurement decision synchronization, procurement incentive alignment, purchasing risk taking, strategic purchasing practices and purchasing knowledge and skills affect supply chain performance. Here on the local Kenyan scene there has been no study done to provide this explanation. More particularly, there is need to study this relationship among the ISO certified companies due to their motivation to observe high at every point of their production process.

3. RESEARCH METHODOLOGY

Research Design:

This study used a descriptive survey design. The data required by this study should be reliable, up-to-date and collected from the respondents themselves. Since the objective of this study required such data, the choice of this research approach was appropriate (Mugenda & Mugenda, 2009). This descriptive survey design is meant to enhance a systematic description that is accurate, valid reliable and current regarding the responses on the effect of procurement practices among ISO certified companies in Kenya. Choudhury, Azeem, and Halim, (2010) used this research design when surveying the effect of procurement on supply chain performance among firms in Bangladesh.

Target population:

All the ISO certified companies in Kenya between January 2008 and December 2016 made up the population of this study. According to Kenya Bureau of Standards (2016), so far, there were 39 ISO certified firms in Kenya. Appendix I gives a detailed breakdown of the ISO certified companies. The unit of observation was employees in the top management positions (Top, Middle and low level) from the procurement department of each of the ISO certified company. The target population was hence 117 respondents.

Sample and sampling techniques:

Sampling Frame:

Gill and Johnson (2002) describe a sampling frame as a list of members of the research population from which a random sample may be drawn. All the employees in the management position both top, middle and low level management position from the procurement departments of the ISO certified companies provided in Appendix I made up the sampling frame of this study.

Sampling Technique:

All the 39 ISO certified companies as by the end of December 2016 were used in this study. This, therefore, made this study a census. This study conducted a census since all the employees in the top management positions in the procurement departments of the 39 ISO certified companies listed in Appendix I were 117 in total. Scholars such as Yates (1981), Israel (1967) as well as Finchman (2008) argue that when a population is smaller and less than 200, a census is appropriate. The study hence used a census on all the 117 respondents.

Data Collection Instruments:

Questionnaires were used to obtain data from the study respondents. Saunders, Lewis and Thornhill (2009) defines questionnaire as a measuring tool that asks individuals to answer a set of questions or respondent to a set of statements. The study collected quantitative data and hence the questionnaire was structured.

Data Collection procedures:

Three methods were used to collect data. In the first method, a structured questionnaire was delivered to the respondent company by the researcher by drop and pick later method after the questionnaire had been completed. The completed questionnaires were collected after two weeks. In the second method, the study completed the questionnaire while interviewing the respondents, to facilitate faster collection of data. The third method involved contacting the respondents on phone and electronically mailing the questionnaire to them.

Pilot study:

The study carried out a pilot test to test the validity and reliability of the instrument in gathering the data required for purposes of the study. According to Polit and Beck (2003), a pilot test is a small scale version, or trial run, done in preparation for a main study. Polit and Beck (2003) states that the purpose of a pilot test is not so much to test research questions and hypothesis, but rather to test protocols, data collection instruments, sample recruitment strategies and other aspects of a study in preparation for a larger study. Reliability was based on the use of 7 questionnaires which were piloted with randomly selected respondents. This represented 6% of the target population. The rule of the thumb suggests that 5% to 10% of the target population should constitute the pilot test (Cooper & Schindler, 2011).

Reliability of the research instrument:

An instrument must be more reliable for it to provide an accurate representation and that any measure is considered valid if it is able to measure what it is intended to measure (Schumacher & Macmillan, 2010). Reliability was operationalized using the internal consistency method that is estimated using Cronbach's alpha (Cronbach, 1971). Typically, reliability coefficients of 0.70 or higher are considered adequate (Cronbach, 1971). The study used a threshold of 0.7 to test the reliability of the research instrument.

Validity of the research instrument:

The content validity of an instrument is the extent to which it provides adequate coverage for the construct domain or essence of the domain being measured (Churchill, 1979). The content validity of the instrument was established by grounding it in existing literature. Re-searchers as well as procurement and supply chain experts were also involved in the pre-testing process.

Data Analysis and Presentation:

Data was analyzed quantitatively. The quantitative analysis of the Likert responses from the questionnaire was done using the mean and standard deviation. This represented descriptive analysis. The quantitative analysis also utilized the regression model to establish the relationship between the independent variables and the dependent variable.

The regression model took the form:

$$Y = C + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_3) + \beta_4(X_4) + e$$

Where

- Y = Supply Chain Performance
- C = The Constant of regression
- β_i = Sensitivity of A to variable X_i , $i = 1, 2, 3, 4$,
- X_1 = Procurement information sharing variable
- X_2 = Procurement decision synchronization variable
- X_3 = Procurement incentive alignment variable
- X_4 = Strategic purchasing practices
- e = The error term

The F-test at 95 % confidence level was used to determine whether the regression relationship between the dependent and the independent variables was statistically significant strong relationship between the variables. This test helped to test

whether there is a strong relationship between procurement and supply chain performance. The coefficient of determination R^2 was used to determine the level of strength at which the variation in the independent variables explains the variation in the dependent variable. MS EXCEL 07 spreadsheet and SPSS version 21 tools were utilized in analyzing the data. The results were presented in form of Tables, Charts and Figures.

Diagnostic tests:

Before running the regression model, the study conducted diagnostic test to establish whether the model adheres to the OLS assumptions. Multicollinearity, Homoscedasticity and normality of the dependent variable tests were conducted. The normality of the dependent variable was tested using Kolmogorov Smirnova (KS) test to show whether there was presence of extreme values. Multicollinearity was tested by computing the Variance Inflation Factors (VIF) and its reciprocal, the tolerance. The Variance Inflation Factor (VIF) quantifies the severity of multicollinearity in an ordinary least-squares regression analysis. VIF's greater than 10 are a sign of multicollinearity; the higher the value of VIF's, the more severe the problem. This study adopted a VIF value of 10 as the threshold. Homoscedasticity suggests that the dependent variable has an equal level of variability for each of the values of the independent variables (Garson, 2012). The Breusch-Pagan test developed by Breusch and Pagan (1979) was used to test for homogeneity in a linear regression model. The null and alternative hypotheses are stated below.

H_0 : The data is not heterogeneous in variance

H_1 : The data is heterogeneous in variance

The rule is that if the p-value is greater than 0.05, H_0 is not rejected and H_1 is rejected, if the p-value is less than 0.05, H_0 is rejected and H_1 is accepted. The result of the test is shown in table 4.12, which indicated that the test statistic was 6.3221 (p-value = 0.5463) with four degree of freedom. Since the test –Statistic is small with the p-value greater than 0.05, the null hypothesis was not rejected and the study concluded that there was homoscedasticity in the data (that is, the data is not heterogeneous in variance), which satisfies the assumption of regression hence the data was perfect for conducting inferential statistics.

4. RESEARCH FINDINGS AND DISCUSSIONS

Introduction:

This chapter contains analysis of data collected for the study. It also contains results presentation for this study; the results are presented in form of figures and tables. Figures are used to present results on demographics while tables were used to show results on descriptive and inferential analysis. The analyzed data was put as per their respective objectives.

Response rate:

Figure 4.1 below indicates the response rate of the study. The number of questionnaires that were administered was 117. A total of 78 questionnaires were responded to. This represented an overall successful response rate of 67% as shown on Figure 4.1. Finchman (2008) argues that a return rate of 50% is acceptable hence a response rate of 67% is acceptable for the current study. The high response rate was achieved because the method of drop and pick was effective. The use of emails also made it possible to reach the respondents who were far hence improving the response rate.

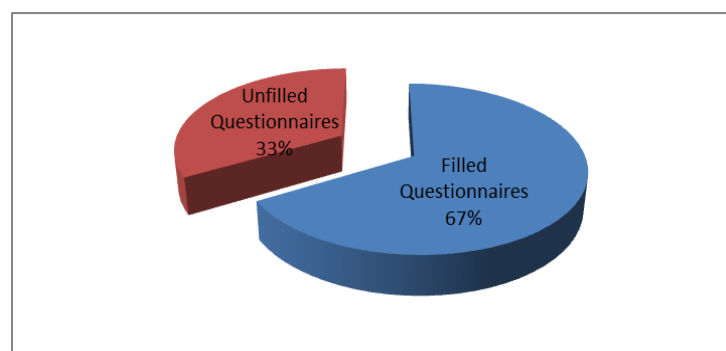


Figure 4.1 Response Rate

Pilot study:

The study conducted a pilot of the questionnaire before using it for the final data collected. Both reliability and validity test were conducted. Content Validity did not use data but expert judgment. 7 respondents were used for the pilot before the questionnaire was used for the main survey.

Reliability Test:

Reliability of the research instrument was tested on 5 respondents who were not included in the final study. Reliability is a measure of the degree to which an instrument yields consistent results or data after repeated trials (Mugenda & Mugenda, 2003). It establishes if the measure is able to yield same results on other occasions or that similar observations are reached by other observers. Cronbach alpha coefficient was used to assess the internal consistency among research instrument items. Alpha equals zero when the true score is not measured and there is only an error component. Alpha equals 1.0 when all items measure only the true score and there is no error component. If the values are too low, either too few items were used or the items had little in common. Nunnally's (1978) suggestion is that a value of not less than 0.7 to be acceptable. This study adopted alpha of 0.7 and above. Table 4.1 presents the alpha values of the questionnaire items.

Table 4.1 Reliability Test

Variable	Cronbach's Alpha	Number of Items	Interpretation
Procurement information sharing	.720	5	Reliable
Procurement decision synchronization	.780	5	Reliable
Strategic purchasing practice	.902	5	Reliable
Procurement incentive alignment	.742	5	Reliable
Supply chain performance	.834	5	Reliable

The Cronbach's coefficient results for all the variables were above 0.7. The study therefore concluded that the questionnaire was reliable to be used to collect data. This was consistent with Sekaran (2003) and Nunnally's (1978) propositions and confirmed the reliability of data collected through the administered questionnaires.

Test of validity:

Validity is the ability of the research instrument to measure what is supposed to measure (Cooper & Schindler, 2006). If the instrument contains a representative sample of the universe subject matter, then the validity is good. To ensure content validity was done, the researcher did a thorough review of literature and identified items that required to measure the concepts, and to also ensure that the questions covered all areas of the study. This enabled the researcher to assess validity of instrument including clarity, relevance, and interpretation of questions and if the respondents could answer the questions without difficulties. Validity was also checked by the supervisor who went through the questionnaire to ensure it was free from ambiguity.

Demographics Analysis:

This section contains results on demographic analysis which include the number of years worked in the organization by the respondents and the professional experience.

Organizational Experience:

Figure 4.2 below shows that 18.8% of the respondents indicated that they had worked with the organization for a period of 6 years and above, majority of the respondents 53.1% indicated they have worked with the organization between 3 and 6 years while 28.1% of the respondents indicated they had worked with the organization for less than 3 years. The implication of the largest range is that most of the workers have a great understanding of the organizational operations.

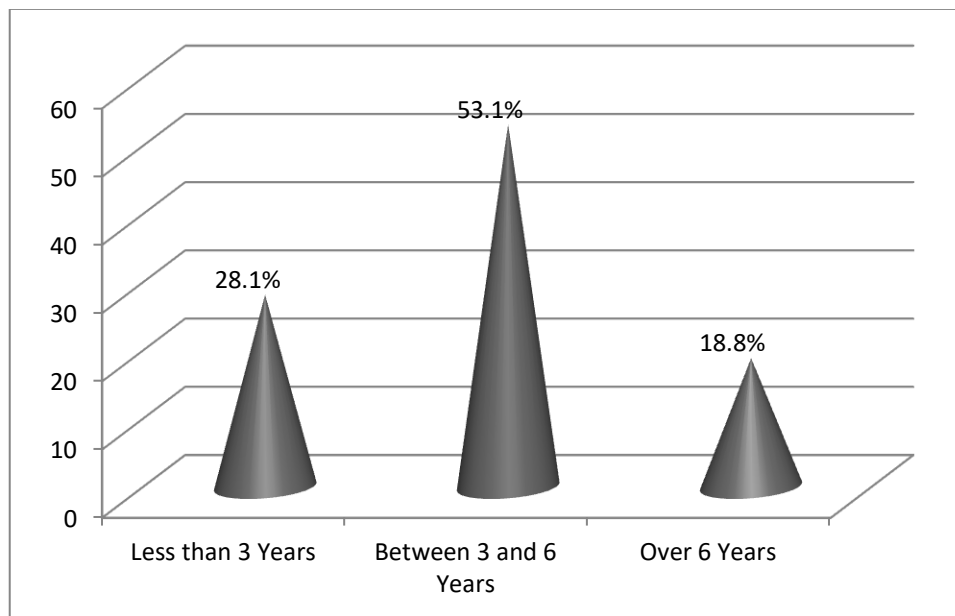


Figure 4.2 Organizational Experience

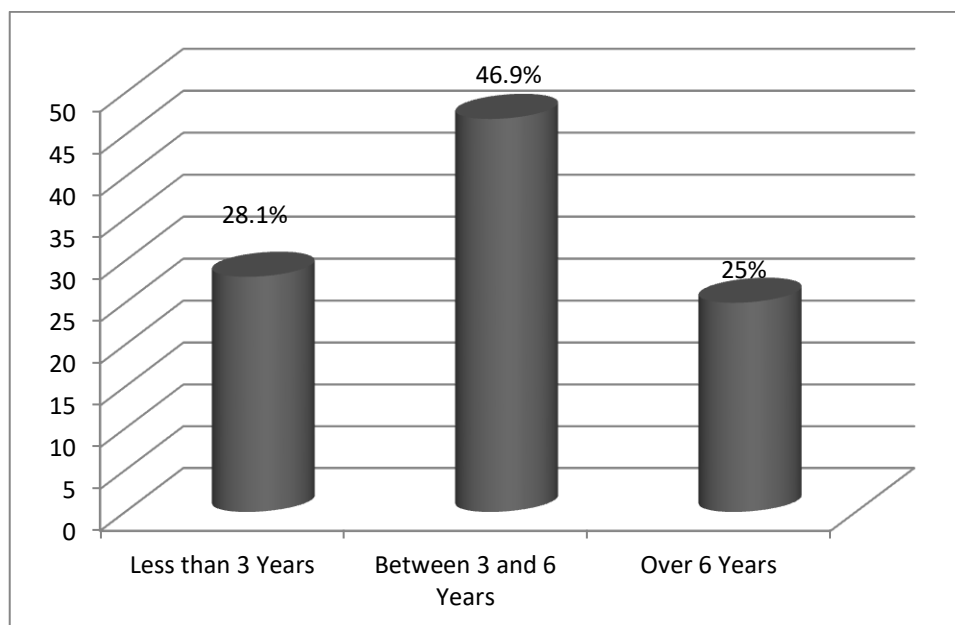


Figure 4.3 Work (Procurement) experience

The findings from Figure 4.3 reveal that only 25% of the respondents have worked in procurement departments for over 6 years. The majority of the respondents, 46.9% indicated that they have worked with the procurement department between 3 and 6 years while the remaining 28.1% of the respondents indicated they have worked for less than 3 years at procurement departments. The implication of the findings is that most of the respondents (between 3 and 6 years) have a better understanding of procurement related questions.

Descriptive Findings and Analysis:

Descriptive findings were used to establish the mean and standard deviation of the responses on the Likert scales used in the study. A scale of 1 to 5 was used in the study. Quantification of Likert scale categories was done by assigning numerical values to the various categories in order to facilitate statistical representation of data. The data was analysed using SPSS version 20 using frequency and percentage tables and it is from those the recommendations were derived. Descriptive findings were presented per objectives.

Procurement information sharing:

The study sought to establish the effect of procurement information sharing on supply chain performance in Kenya. The descriptive results are presented in Table 4.2.

Table 4.2 Procurement information sharing

Statements	Strongly Disagree	Disagree	Moderately Agree	Agree	Strongly Agree	Mean	Std Dev
The working environment enhances collaborative working	0.00%	0.00%	18.80%	0.00%	81.20%	4.63	0.79
The organization carefully invest in the right information infrastructure	0.00%	0.00%	0.00%	0.00%	100.00%	5.00	0.00
The degree of sharing procurement information is high	9.40%	6.20%	40.60%	28.10%	15.60%	3.34	1.12
There are systems in place for linking information systems	12.50%	15.60%	25.00%	34.40%	12.50%	3.19	1.23
There are effective mechanisms to manage external relationships with the organization	12.50%	6.20%	25.00%	28.10%	28.10%	3.53	1.32
Average						3.94	0.89

Results on Table 4.2 show that majority, 81.20% of the respondents strongly agreed with the statement that working environment enhances collaborative working while 18.80% moderately agreed. Respondents wholly (100%) agreed with the statement that the organization carefully invest in the right information infrastructure. 43.7% of all the respondents agreed that there is high degree of sharing procurement information, 40.6% moderately agreed, 6.2% disagreed while 9.4% strongly disagreed. Moreover, 46.9% of the respondents agreed that there are systems in place for linking information systems, 25% of them moderately agreed while 15.6% disagreed and 12.5% strongly disagreed. Finally, the study findings reveal that 28.1% of the respondents strongly agreed that there are effective mechanisms to manage external relationships with the organization, 28.1% agreed, 25% moderately agreed while only 6.2% disagreed and 12.5% strongly disagreed. Overall, the average mean of the responses indicated from the results was 3.94 which show that the respondents were agreeing on most of the statements while the standard deviation was 0.89 which indicates that the answers received were varied as they were dispersed far from the mean. This implies that Procurement Information sharing s such as enhanced collaborative working environment, investment in the right information infrastructure and the management of external relationships improves the performance among ISO certified companies in Kenya.

Supply chain performance:

The study sought to establish the extent to which the respondents agree with the statements on supply chain performance. The descriptive results are presented in Table 4.3.

Table 4.3 Supply chain performance

Statements	Strongly Disagree	Moderately Agree	Agree	Strongly Agree	Mean	Std Dev
There is reduce cost of inventories	0.00%	18.80%	0.00%	81.20%	4.63	0.79
The needs of clients are met due to proper inventory management	0.00%	0.00%	0.00%	100.00%	5.00	0.00
Supply management is a key Contributor to profitability	0.00%	3.10%	28.10%	68.80%	4.66	0.55
Supply management has led to reduced inventory volumes	18.80%	31.20%	9.40%	40.60%	3.53	1.50
Low variance between planned and used inventory	0.00%	3.10%	84.40%	12.50%	4.09	0.39
Average					4.38	0.65

The results of the findings from the summary table above reveal that majority 81.20% of the respondents strongly agreed that there is a reduction in the cost of inventories and only 18.8% moderately agreed. Moreover, the respondents wholly (100%) and strongly agree that the needs of clients are met due to proper inventory management. Furthermore the results indicate that majority of the respondents (68.80%) strongly agreed with the statement that supply management is a key contributor to profitability, 28.10% agreed while only 3.10% moderately agreed. The findings also reveal that majority 40.60% of the respondents strongly agreed that supply management has led to reduced inventory volumes, while 9.40% agreed, 31.20% moderately agreed and 18.80% strongly disagreed. Finally, the findings of the study indicate that 12.50% of the respondents strongly agreed while 84.40% agreed that there is low variance between planned and used inventory, and only 3.10% moderately agreed. On average, the findings of the study shows that majority of the respondents agreed with the statements on supply chain performance (mean, 4.38). The results of the findings also indicate that there were low variations in the answers given by the respondents (standard deviation, 0.65). This implies that cost effectiveness, timely procurement and quality outsourcing enhances the performance among ISO certified companies in Kenya.

Normality test:

The normality of the dependent variable was also tested using Kolmogorov Smirnova (KS) test to show whether there was presence of extreme values. The dependent variable should be normally distributed. The results for the KS test of normality are as presented in Table 4.4.

Table 4.4 Kolmogorov- Smirnova test of normality

Tests of Normality	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
	Supply chain Performance a Lilliefors Significance Correction	0.186	27	0.061	0.192	31

The null hypothesis that the dependent variable is normally distributed is not rejected at 5% level of significance since the level of significance that is, 0.056 for KS test in (Table 4.4) is not significant (more than 0.05). This implies that the data met the statistical requirements to be used in a regression model. The study hence conducted an OLS regression model.

Heteroscedasticity Test:

Homoscedasticity suggests that the dependent variable has an equal level of variability for each of the values of the independent variables (Garson, 2012). A test for homoscedasticity is made to test for variance in residuals in the regression model used. If there exist equal variance of the error term, we have a normal distribution. Lack of an equal level of variability for each value of the independent variables is known as Heteroscedasticity, The Breusch-Pagan test developed by Breusch and Pagan (1979) was used to test for homogeneity in a linear regression model. The null and alternative hypotheses are stated below.

H_0 : The data is not heterogeneous in variance

H_1 : The data is heterogeneous in variance

The rule is that if the p-value is greater than 0.05, H_0 is not rejected and H_1 is rejected, if the p-value is less than 0.05, H_0 is rejected and H_1 is accepted. The result of the test is shown in table 4.9, which indicated that the test statistic was 6.3221 (p-value = 0.5463) with four degree of freedom. Since the test –Statistic is small with the p-value greater than 0.05, the null hypothesis was not rejected and the study concluded that there was homoscedasticity in the data (that is, the data is not heterogeneous in variance), which satisfies the assumption of regression hence the data was perfect for conducting inferential statistics.

Table 4.5: Test for Heteroscedasticity in the Response and Residuals

Test – Statistic	Degree of Freedom	P-Value
6.2312	4	0.5362

Regression analysis

The study used a regression model to establish the effect of procurement management practices on the supply chain performance Kenya. This enabled the study to answer the research questions. The overall regression model was $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$ Where; Y = supply chain performance, X_1 = procurement information sharing, X_2 = procurement decision synchronization, X_3 = strategic purchasing practice, X_4 = procurement incentive alignment, and ε = Error term.

Table 4.6 Model summary

Indicator	Value
R	0.795
R Square	0.632
Adjusted R Square	0.577
Std. Error of the Estimate	0.271

The study findings indicated that procurement management practices account for 59.4% of the variation in the supply chain performance of organizations in Kenya. This implies that procurement information sharing, procurement decision synchronization, strategic purchasing practice and procurement incentive alignment jointly account for up to 63.20% of the variation in supply chain performance in Kenya. This is indicated by an R-square value of 0.632. Further research should be conducted to investigate the other factors that explain 36.80% effect of procurement management practices at the organizations in Kenya. The regression results show that R was 0.795 which shows that the correlation between the joint predictor variables (procurement information sharing, procurement decision synchronization, strategic purchasing practice and procurement incentive alignment) and dependent variable (supply chain performance) is positive.

The results for the model fitness are presented in Table 4.7.

Table 4.7 Model Fitness

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	3.404	4	0.851	11.581	0.000
Residual	1.984	27	0.073		
Total	5.389	31			

The model fitness results indicate that the overall model linking supply chain performance in Kenya was significant as indicated by a significant F statistic as shown by (0.000) significance level which was less than 0.05 at 5% level of significance. This implies that procurement management practices can significantly be used to predict supply chain performance of Kenya.

5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction:

This chapter is structured into the summary of the findings, the conclusion, recommendations for the study and recommendations for further studies. Each of the section is in line with the objectives of the study.

Summary of the Findings:

This section presents the summary of the findings obtained from the data collected and analyzed. The summary has been presented as per each research objective. From the summary, the study made conclusions which led to the recommendations by the study.

Procurement information sharing:

The study reveals that there was a weak but positive and significant correlation between procurement information sharing and the supply chain performance in Kenya. An increase in procurement information sharing practices such as high degree of sharing procurement information, the organizational careful investment on information infrastructure, putting systems in place for linking information systems, putting in place effective mechanisms to manage external relationships

with the organization and a good working environment to enhance the collaborative working would significantly lead to an increase in supply chain performance. The regression results revealed that procurement information sharing affect the supply chain performance of the organization positively and significantly. This implies that an increase in the number of procurement information sharing for instance, high degree of sharing procurement information, the organizational careful investment on information infrastructure, putting systems in place for linking information systems, putting in place effective mechanisms to manage external relationships with the organization and a good working environment significantly increases the supply chain performance of the organization.

Conclusion:

The study made conclusions per objective based on the summary findings. The conclusions guided the study to make recommendations.

Procurement information sharing:

The study concluded that procurement information sharing has a weak but positive and significant correlation on the supply chain performance in Kenya which implies that an increase in procurement information sharing leads to a positive and significant effect on the SC performance of the organization. Some of the procurement information sharing practices includes degree of sharing procurement information, careful organizational investment on information infrastructure and effective mechanisms for managing external relationships with the organization.

Policy Recommendations of the Study:

The study recommends that the procurement management should put up systems to link information systems. There is also need to carefully invest in the right information infrastructure. The organizations should put up mechanisms for managing external relationships with the organization. Moreover, it should ensure that the degree of sharing procurement information is high as well as establishing a good working environment as it enhances collaborative working since procurement information sharing affects performance significantly.

The study further recommends that the procurement management should centralize their source of product and process knowledge. There is also need to open information exchange and establish a strong link between stakeholders and internal departments through a strong management information system. Additionally, the management should ensure there are automotive mechanisms for procurement data collection and analysis. Finally, there should be effective relay of procurement decisions from one point to another since procurement decision synchronisation affects supply chain performance positively.

The study also recommends that procurement management should consider strategic sourcing as a pivotal activity for purchasing and supply management. There is also need to distinct between strategic, tactical and reactive sourcing. Moreover, outcomes of strategic procurement decisions should be presented to senior management for their consideration and overall sourcing strategy. There is also need for the procurement management board to discuss procurement strategy and provide decision making as well as organization has in place since strategic purchasing practices affects supply chain performance positively.

Lastly the study recommends that procurement management should that the rewards for procurement are appropriate. There is also need to sophisticate availability of contracts to only suppliers. The management should also ensure there are clear performance metrics for procurement managers. Incentive audits should be conducted on adoption of new technologies, new markets, or new supply chain programs since procurement incentive alignment affects the performance of supply chain significantly.

Recommendations for Further Study:

The study recommends future studies to focus on other determinants of affecting supply chain performance in procurement management since procurement information sharing, procurement incentive synchronization, strategic purchasing practice and procurement incentive alignment account for 73.20% effect on the procurement management. Other studies should be conducted to determine the effect of the same factors on the supply chain performance on other institutions.

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