

ROLE OF COLLABORATIVE PLANNING FORECASTING AND REPLENISHMENT ADOPTION ON PROCUREMENT PERFORMANCE IN RETAIL SECTOR IN KENYA: A CASE STUDY OF NAKUMATT HOLDINGS

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Abstract: The central theme of the CPFR guidelines was to align processes and standardize technologies to share forecast and other planning information securely, simultaneously, globally, and in real-time. In order to increase the accuracy of forecasts and to improve the ability of retailers to quickly respond to changes in market conditions, the Voluntary Inter-Industry Commerce Standards association (VICS) first proposed the collaborative, planning, forecasting and replenishment (CPFR) model in 1998. The purpose of this study was to investigate the role of collaborative planning, forecasting and replenishment adoption on procurement performance in retail sector in Kenya, a case of Nakumatt holdings. This study evaluated how ICT integration, Organizational policy, Cost reduction and Lead time in CPFR affect procurement performance in retail sector. The theoretical review constituted of Diffusion of Innovation Theory, Institutional Theory, Transaction Cost Theory and Theory of Constraints. This study adopted a descriptive research design. The target population was 450 consisting of a sample frame of directors, head of departments, procurement and supply chain officers, logistics officers and ICT officers. Using Masuria formula, a sample size for the study was determined. The study used stratified sampling where proportionate sampling was used to determine the specific sample size of each stratum. Self-administered questionnaires were used to obtain primary data while journals, books and e-resources were used to obtain secondary data. Data analysis was done using SPSS V21. Descriptive data was presented using frequency distribution tables and percentages. The study established that there was a very strong positive correlation ($r = 0.79, p < 0.05$) between ICT adoption and procurement performance at Nakumatt holdings, very strong positive correlation ($r = 0.61, P < 0.05$) between organizational policies and procurement performance at Nakumatt holdings, a very strong positive correlation ($r = 0.73, P < 0.05$) between top management support on CPFR and procurement performance at Nakumatt holdings and a strong positive relationship ($r = 0.68, p < 0.05$) between CPFR in procurement and reduced lead time. It was also revealed that, 43.3% of the respondents strongly agreed that CPFR adoption increased customer satisfaction and that 31.7% strongly agreed that CPFR adoption increased profit.

Keywords: Forecasting, Replenishment and Performance.

1. INTRODUCTION

BACKGROUND OF THE STUDY:

Collaborative Planning, Forecasting and Replenishment (CPFR) are concepts that aim to enhance supply chain integration by supporting and assisting joint practices (Sabbath). CPFR seeks cooperative management of inventory through joint visibility and replenishment of products throughout the supply chain. Information shared between suppliers and retailers

aids in planning and satisfying customer demands through a supportive system of shared information. This allows for continuous updating of inventory and upcoming requirements, making the end-to-end supply chain process more efficient. Efficiency is created through the decrease expenditures for merchandising, inventory, logistics, and transportation across all trading partners.

According to Huang et al. (2008) CPFR, as its name implies, responds to the conduct of an enterprise's planning, forecasting and replenishment by drawing its supplying products with collaborative operations of all trading partners through the distributed channels in a supply and demand chain. Hence the focus is on tools and techniques required for conduction business effectively. Terwiesch et al. (2005) quotes CPFR as characterized by much broader cooperative arrangements where retailers and suppliers jointly develop forecast by sharing Point Of Sale (POS), inventory, promotions strategy and production information.

Global perspective on Collaborative Planning, Forecasting and Replenishment (CPFR)

In a global business perspective, companies are actively expanding to seek new opportunities over the world. For multinationals to remain competitive they have to embrace supply chain integration practices. In a global market, Ragatz et al., (1997) reinforces the point that supply chain integration practices are recognized to be one of today's competitive advantages and is determined by how effectively companies link their operations with their supply chain partners such as suppliers, distributors, wholesalers, retailers and end customers.

In America, there has been a relative decline in supply chain performance of the service industry and as a result, its contribution to the total American GDP is less than half what it was two decades ago. This was attributed to poor distribution management leading to increased cost of operations thus resulting to the gross operating profit margin to fall from 10.5% in the year 2012 to 3.6% in the year 2013 (World Bank, 2013)

Studies on CPFR propose the next logical development in the future of CPFR. Thron *et al.* (2006) investigated various common supply chain performance measures to show what impact of increasing adoption of collaborative replenishment between manufacturer and several major customers has on each market participant. Holmstrom *et al.* (2002) argues that the benefit of using category management is that the retailer can scale up collaboration with a large no of suppliers without increasing planning resources. For the supplier the benefit is the point of sale forecasts at the time of assortment decision, to support this collaborative forecasting process, there is a need for more robust replenishment solutions, new measures to illustrate benefits and a distributed planning architecture and software. Business partners, IT skills and infrastructures consequently appear to matter quite considerably for whether and how they adopt CPFR, the costs and benefits each partner receives.

REGIONAL PERSPECTIVE ON COLLABORATIVE PLANNING, FORECASTING AND REPLENISHMENT (CPFR):

Gelinas and Makus (2005) showed how performing CPFR not only involves the processes of collaboration (e.g., sharing information and resolving exceptions) in developing Countries, but also a set of routines for managing data and technology (e.g., manually entering updates, building system integrations and data extraction algorithms). Business partners IT skills and infrastructures consequently appear to matter quite considerably for whether and how they adopt CPFR, the costs and benefits each partner receives. Chen *et al.* (2000) discussed an important observation in supply chain management, known as the bullwhip effect, suggests that demand variability increases as one moves up a supply chain. Yan-Fang and Yue (2007) considered CPFR which provides a way to reduce huge loss led by bullwhip effect by scientifically forecasting the customers demand and reasonably replenishing the inventory.

It is also observed that research is not limited to traditional methods of inventory control and sales forecasting, but more advanced techniques like Simulation and Artificial Neural Network (ANN) are also used for optimization and decision making in CPFR.

Sari (2008) observed through simulation output analysis that the performance increase gained from CPFR and Vendor-Managed Inventory (VMI) significantly depends on three factors; these are capacity tightness of the plant, replenishment lead times and uncertainty in market demand. Huang *et al.* (2008) used to present an autonomous Collaborative Forecasting (CF) system which is an extensible architecture based on ANN s that were implemented to perform the prediction for the real-time supervision of Stock-Keeping Units (SKU's) inventory and sales status in the collaborative trading circumstances.

Shu *et al.* (2007) quotes that the working principles of CPFR are to analyze market data provided by customers, pass them on to the suppliers and also to provide feedback about products without losing sight of the capabilities of the suppliers and the purchasers. Chen *et al.* (2006a) argued the basic theory of CPFR as information sharing and collaboration operation to get multi-win. The foundation of collaboration should be equality. Enterprises in the union should trust each other. Thus, the process of collaboration along with flow of information are pinpointed which would help organisation to achieve maximum efficiency for the overall supply chains. According to Gelinas and Makus (2005) CPFR is a supply chain innovation in which business partners (e.g., retailers and manufacturers or manufacturers and suppliers) attempt to improve supply chain performance (e.g., on time deliveries and lower inventory costs) by sharing forecast information (e.g., promotions and planned orders, sales and inventory data). Shu *et al.* (2006) quotes CPFR as demand oriented extended supply chain. CPFR is a whole set of working flows and these flows aim to improve customer's value by means of collaboration between enterprises, sharing standardized information and setting up objective plans. This definition aptly includes the information flow for value addition instead of emphasizing the economic aspect only like previous definitions.

LOCAL PERSPECTIVE ON COLLABORATIVE PLANNING, FORECASTING AND REPLENISHMENT (CPFR):

Kenya's retail market comprises a mixture of modern retail outlets that supply consumer goods from major international firms and informal traders or family-run concerns that sell more basic goods. Traditional retailing is dispersed over the country with the highest concentration in kiosks/dukas, open air markets, and street hawking. Reportedly, it remains the largest segment of the market, with an 80 percent market share. These shops commonly sell locally-manufactured food, beverages, fresh fruits and vegetables, pulses, and grains. The country's Vision 2030 includes plans to improve the efficiency of the retail market and once the formal retail expands, there should be significant opportunities for logistics service providers (PWC, 2012). Ngigi (2012) indicates that Kenya is second to South Africa as the most formalized African country in terms of formal retail penetration with retail penetration standing at around 30 per cent. The retail market is dominated by four major outlets; Nakumatt, Tuskys, Uchumi and Naivas. Three of them (except Naivas) have already crossed into the neighboring countries. Nakumatt is the largest retailer in Kenya by turnover. It has 37 stores, followed by Tuskys which has 37 outlets, Uchumi 18 outlets and then Naivas with 19 branches. Nakumatt is also present in Uganda, Tanzania and Rwanda, while Tuskys and Uchumi are also in Uganda. Uchumi recently announced plans to increase its presence in Uganda with three more branches. Use of the formal outlets increases customer choices, while creating employment. The growth of supermarkets in Kenya has been attributed to such factors as increased urbanization; a growing middle class and its changing lifestyles; and market liberalization that has led to increased competition in the sector. The supermarket is not a new concept in Kenya, having had the first store of its kind in the 1960s (Neven, Reardon 2005). Some of the old players in the retail industry are Uchumi Supermarkets, founded in the mid '70s and Nakumatt Supermarkets, founded in 1987. However much growth was not seen within the retail chains until the mid '90s when supermarkets grew from 5 to the current over 300 stores in Kenya (Kamau, 2008; Neven and David, 2005). These range from well-established retail chains to independent one store supermarkets. Looking into the future, the Kenyan retailing industry is expected to experience strong and steady growth. The large and growing Kenyan population is set to provide steady and ever-growing demand for retail products. In addition, the anticipated entry and expansion of international retailers is set to continue driving growth over the forecast period. The increasing rate of urbanization, rapid growth in the Kenyan middle class and rising demand for specific goods and services are set to combine with the Kenya's overall positive economic outlook to boost growth in retailing in Kenya during the forecast period (Euromonitor International, 2014).

THE NAKUMATT HOLDINGS:

Nakumatt holdings was established in 1987 as a small shop (family managed outlet) and has over the years grown from the small shop to a multimillion business empire with 40 branches all over Kenya and in east Africa. Currently the supermarket has 5,500 employees with an annual turnover of over Ksh. 38 billion constituted by an average 85,000 transaction a day. Nakumatt is the largest retail outlet in East Africa having branches in Uganda, Rwanda and Tanzania. Nakumatt's stores formats range from supermarkets to hypermarkets which showcases distinct world class shopping floor layout and amenities with 1.5 million square feet of selling space. Its main competitors include Tuskys Supermarket, Naivas Supermarket, Ukwala Supermarket, Uchumi Supermarket and Chandarana Supermarket. As the largest retail market player in East Africa, Uganda and Rwanda, Tanzania and still expanding to the wider East African region. All the branches hold a range of over 75,000 SKU's of products with an average basket value of Ksh 1,275.

Nakumatt Holdings has in keeping with global standards managed to adopt various marketing strategies that differentiate their brand. For instance, Nakumatt pioneered 24-hour supermarkets in 2007, with the view of accommodating emerging trends. Subsequently, commencing May 1, 2007, Nakumatt Lifestyle and Nakumatt Ngong Road began operating as 24-hour outlets. Nakumatt Holdings has launched a wide range of retail products under its new private label. In 2013, Nakumatt progressively introduced on its shelves the branded Nakumatt Blue Label, which is geared at providing the retailer's shoppers with a range of quality, value for money products. Benchmarked against leading brands in the respective categories, all Nakumatt Blue Label products are priced fairly to provide more value for money to shoppers. The products are distinctively branded with an iconic blue band to reflect Nakumatt's commitment to deliver quality and reliable products. In the same year, Nakumatt launched its Global MasterCard which is a prepaid debit card combined into a loyalty card, with access to over 33 million retailers and businesses across 210 countries where MasterCard is accepted.

Nakumatt has also eyed acquisition of other supermarket chains as part of its growth strategy. In 2010, it acquired Woolmatt for an undisclosed amount, gaining a larger share of the CBD market, and at the same time moving to replace the footprint of its Downtown branch lost in a fire tragedy in 2009. In the same year, Nakumatt made a major milestone in its expansion strategy when it opened three supermarkets in Kakamega, Diani, Nanyuki and a 24-hour hypermarket in Eldoret. The chain opened a new store in Uganda on October 12, 2013 and plans to open two more in Kenya and three in Uganda, as part of a region wide expansion drive targeting to have 65-70 stores by 2015. The chain has 40 branches in Kenya, Uganda, 7 Tanzania and Rwanda, and hopes to open outlets in Djibouti, South Sudan, Ethiopia and Burundi (Mwaniki, 2013).

Tuskys Supermarkets is another major chain in Kenya, ranking second, by sales, in the retail industry. The oldest and once leading supermarket chain, Uchumi, is also a major player in the industry. Other key retail chains are Ukwala, Chandarana, Eastmatt and Naivas Supermarkets which is amongst the newest players.

Nakumatt Holdings Ltd. operates a chain of supermarkets in East Africa, Uganda, and Rwanda. It also operates convenience stores and hypermarkets. The company also provides gift vouchers, gift cards, and VISA cards. Nakumatt Holdings Ltd. was founded in 1987 and is based in Nairobi, Kenya.

STATEMENT OF THE PROBLEM:

The beginnings of Collaborative Planning Forecasting and Replenishment (CPFR) can be traced to 1995/96 when Wal-Mart and Warner-Lambert (now part of Pfizer), together with System Analysis Program (SAP) and Benchmarking Capital started an experiment to jointly forecast and plan the replenishment of Listerine, a popular brand of mouthwash. The experiment was limited to one Warner-Lambert plant and three Wal-Mart distribution centers (DCs). As a result of CPFR, Warner-Lambert's service levels increased from 87% to 98%, while the lead times to deliver the product decreased from 21 to 11 days. The partnership also increased Listerine sales by \$8.5 million over the test period (Hill, 1999). The success prompted the Voluntary Inter Industry Commerce Standards (VICS) association, in cooperation with over thirty companies from the drug, grocery, general merchandise, and apparel industries, to set up guidelines for synchronizing business processes, forecasts, and replenishments, now formalized as CPFR.

CPFR integrates enterprises' internal and external information systems to produce a collaborative forecast and replenishment scheme that operates between retailers and suppliers (VICS, 2008). Results of several pilot projects on benefit of CPFR indicate 30% - 40% improvements in forecast accuracy, significant increases in customer service, sales increase between 15% and 60%, and reductions in days of supply of 15% - 20%. (VICS, 2001), (Ireland and Bruce, 2000.)

Over the course of 2011 and 2012, Kenya's formal retailers registered substantial expansion in the number of outlets, with the target of this expansion middle-class consumers and affluent consumers living in upscale residential areas. During this time period, more than 20 retail branches opened in Kenya, widening the presence of these formal retailers. In a bid to promote consumer loyalty and increase revenues, Kenya's nascent supermarket chains are packaging and branding their own private label products, especially in the case of Nakumatt. A recent increase in the adoption of online retailing platforms and the enduring popularity of home shopping represent innovative ways in which retailers are maintaining and increasing their value shares.

Several studies have focused on adoption of ICT in procurement (Musau, 2015), appraisal of workers (Loise, 2015), Motivation (koki, 2014), and marketing strategies of Nakumatt (Magu, 2014) among others but none of these studies focused on the role of CPFR adoption on procurement performance in retail sector in Kenya.

SPECIFIC OBJECTIVES:

- To determine the effect of ICT integration on procurement performance at Nakumatt holdings.
- To investigate the effect of organizational policy on procurement performance at Nakumatt holdings.
- To assess the effect of top management support on procurement performance at Nakumatt holdings.
- To examine the effect of reduced lead time on procurement performance at Nakumatt holdings.

2. LITERATURE REVIEW

DIFFUSION OF INNOVATION THEORY:

Diffusion of innovation theory, developed by E.M Rogers in 1962 is one of the oldest social science theories. It originated in communication to explain how over time, an idea or product gains momentum and diffuses or spreads through a specific population on social system (Vareska, 2009). The end result of this diffusion is that organizations as part of a social system adopt a new idea, behavior or product. The key to adoption is that the organization must perceive the idea, behavior or product as new or innovative. It is through this that diffusion is possible (Rice & Galvin, 2006). Adoption of a new idea, behavior or product that is innovative does not happen simultaneously in a social system; rather it is a process whereby some organizations are more optimistic to adopt the innovation than others (Hagedoom, 2010). This theory has been used successfully in many fields including communication in manufacturing and logistics operations. In logistics, diffusion of innovation theory is used to accelerate the adoption of important supply chain logistics service programs that typically aim to change the behavior of a social system (Utterback, 2006)

Innovation-decision process is “an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation”. The innovation-decision process involves five steps: knowledge, persuasion, decision, implementation, and confirmation. These stages typically follow each other in a time-ordered manner. (Rogers (2003).

According to Huang et al. (2008) CPFR, as its name implies, responds to the conduct of an enterprise’s planning, forecasting and replenishment by drawing its supplying products with collaborative operations of all trading partners through the distributed channels in a supply and demand chain. Hence the focus is on ICT tools and techniques required for conduction business effectively. Terwiesch et al. (2005) quotes CPFR as characterized much broader by cooperative arrangements where retailers and suppliers jointly develop forecast by sharing Point Of Sale (POS), inventory, promotions strategy and production information.

INSTITUTIONAL THEORY:

Institutional Theory is a Policy-making theory that emphasizes the formal and legal aspects of government structures. Kraft's Public Policy (2007). Institutional theory is a widely accepted theoretical posture that emphasizes rational myths, isomorphism, and legitimacy and focuses on the deeper and more resilient aspects of social structure. It considers the processes by which structures, including schemes, rules, norms, and routines, become established as authoritative guidelines for social behavior (Scott, 2004). Different components of institutional theory explain how these elements are created, diffused, adopted, and adapted over space and time; and how they fall into decline and disuse.

Powell and DiMaggio (1991) define an emerging perspective in organization theory and sociology, which they term the 'new institutionalism', as rejecting the rational-actor models of classical economics. Instead, it seeks cognitive and cultural explanations of social and organizational phenomena by considering the properties of supra-individual units of analysis that cannot be reduced to aggregations or direct consequences of individuals’ attributes or motives.

Scott (1995) indicates that, in order to survive, organisations must conform to the rules and belief systems prevailing in the environment (DiMaggio and Powell, 1983; Meyer and Rowan, 1977), because institutional isomorphism, both structural and procedural, will earn the organisation legitimacy (Dacin, 1997; Deephouse, 1996; Suchman, 1995). Multinational corporations (MNCs) operating in different countries with varying institutional environments will face diverse pressures. Some of those pressures in host and home institutional environments are testified to exert fundamental influences on competitive strategy (Martinsons, 1993; Porter, 1990) and human resource management (HRM) practices (Rosenzweig and Singh, 1991; Zaheer, 1995).

There is substantial evidence that firms in different types of economies react differently to similar challenges (Knetter, 1989). Social, economic, and political factors constitute an institutional structure of a particular environment which provides firms with advantages for engaging in specific types of activities there. Businesses tend to perform more efficiently if they receive the institutional support.

Martinsons (1998) developed a theory of institutional deficiencies (TIDE) suggesting that relationship-based commerce like CPFR will prevail where rule-based markets cannot flourish due to institutional deficiencies. Martinsons (2008) extends TIDE to show how the development of relationship-based e-commerce in China has resulted from that country's lack of trustworthy and enforceable set of rules for doing business. His theory suggests that factors such as personal connections (guanxi in China, blat in Russia, etc.), informal information, and blurred business-government relations (which also encourage corruption) will constrain the transition from the physical marketplace to online market spaces.

SYSTEMS THEORY:

This theory was developed by Hegel in 1968. The theory advocates that a system should interact with its environment. In this theory, Managers who understands systems theory recognizes how different systems affect a worker and how a worker affects the systems around them. A system is made up of a variety of parts that work together to achieve a goal. System theory allows managers to examine patterns and events in the work place. This helps managers to coordinate programmes to work as a collective whole for the overall goal or mission of the organization rather than for isolated departments. This theory is necessary for this study since the top management support is key in adoption and implementation of CPFR activities in Nakummatt holdings. If there is no top management support for all the workers and the technology, then the organization may not achieve all its goals.

THEORY OF CONSTRAINTS:

The Theory of Constraints is a methodology for identifying the most important limiting factor (i.e. constraint) that stands in the way of achieving a goal and then systematically improving that constraint until it is no longer the limiting factor. In manufacturing, the constraint is often referred to as a bottleneck. Scheinkopf, L. (1999).

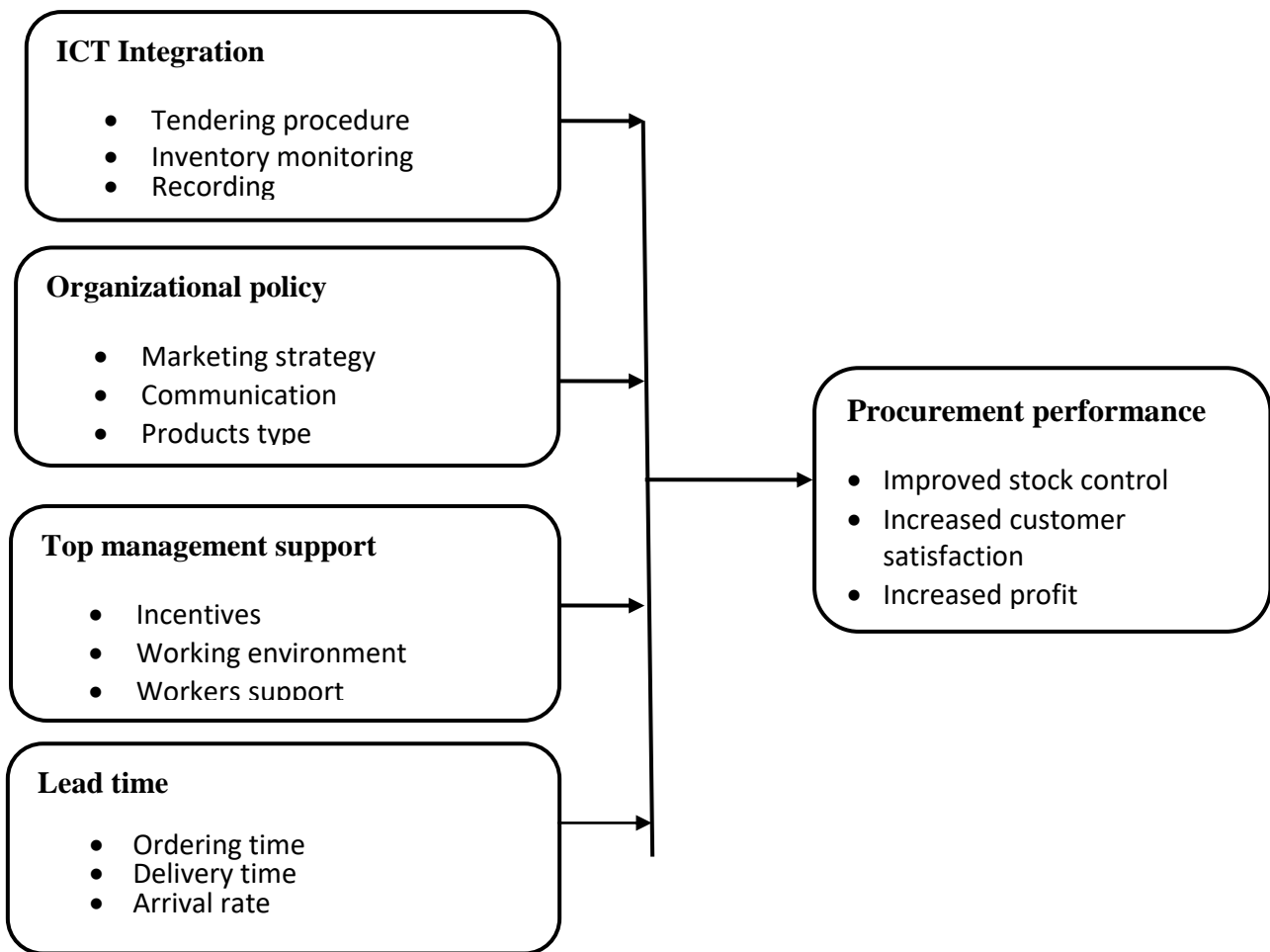
The TOC has evolved over the past 20 years from a production scheduling technique to a systems methodology which is primarily concerned with managing change. Klein & DeBruine (1995) state that originally Goldratt set out to devise a systematic approach to identifying what was preventing a company from achieving its goal of making money for its owners. The approach was first used in a manufacturing environment and reported at an APICS conference in 1980. Hrisak (1995) advises that TOC is now used worldwide by companies of all sizes. He states that many managers who routinely use TOC believe they understand their businesses for the first time.

Goldratt (1990b), Klein & DeBruine (1995) & Dettmer (1997) state that TOC views an organisation as a chain composed of many links, or networks of chains. Viewed as a constrained system, a chain's links all contribute to the goal and each link is strongly dependant on the other links. The chain, however, is only as strong as its weakest link. Goldratt's TOC states that the overall performance of an organisation is limited by its weakest link. He states that if an organisation wants to improve its performance, the first step must be to identify the system's weakest link, or constraint.

TOC has broad applications in manufacturing organizations, but it can also be used effectively to improve performance in areas outside of manufacturing, such as marketing and administration. As such, its benefits cross multiple boundaries and functions including, decreased production lead times; improved quality of products and services, dramatic increases in profitability, reduced inventory levels, reduced bottlenecks. TOC can be used in conjunction with other management techniques such as total quality management (TQM) and just-in-time (JIT) to provide a comprehensive linked set of techniques that emphasize continuous improvement in all areas of operation. TOC has also been applied at the supply chain level to coordinate the activities of upstream and downstream trading partners.

Lead time can be an extremely important competitive advantage when stock is not held in advance. Make-to-order businesses, whether service or production based, for profit or nonprofit, can directly benefit from lead time reduction due to the removal of excess work-in-process, smaller transfer batches, and/or smaller process batches.

Conceptual framework:



Independent variable

Dependent variable

EMPIRICAL REVIEW:

Recent empirical research shows that information sharing in relationship increases procurement performance (Deeter-Schmelz *et al.*, 2001). And that collaboration with external supply chain entities increases internal collaboration which in turn improves procurement performance (Emiliani&Stec, 2005).

A study by Davila *et al.*, (2003) on ICT procurement revealed that, ICT provide automated systems of tracking and keeping records about suppliers. These records enable procurement officers to make good decisions when handling suppliers leading to improved procurement. This leads to increase in different types of suppliers which enable the procurement entity to customize purchasing to needs of individual customers improving customer satisfaction. The study also revealed that ICT reduces costs of procurement because of using online platforms. According to study by Eadie *et al.* (2007), CPFR in Procurement when properly embraced significantly reduces procurement costs through simplification of the procuring process and reduction of wastage. For instance, costs related to traveling around to meet with potential suppliers or waiting for potential suppliers to travel in order to have a business meeting are substantially reduced.

A study by Helfat and Peteraf, (2003) emphasize the need for a team organized around a central objective, the achievement of which entails the creation of a new capability. These determine the organizational policy which determines the direction of the organization. Winter, (2003) suggests that a capability comprises a large chunk of activity that enables outputs that clearly matter to the organization’s survival and prosperity. Corporate success derives from a competitive advantage which is based on distinct policy, which is most often derived from the unique character of a firm's relationships with its suppliers, customers, or employees, and which is precisely identified and applied to relevant markets (Kay, 2003).

Another study by Christopher, (2011) established that the inventory is built up by using a forecast to predict the customers need before the actual demand arises. He further argued that forecasting error increases as the lead time gets larger which in turn cause increased demand volatility and a need to keep higher levels of safety stocks. Therefore, it is advisable to decrease the lead time gap in order to have more accurate forecasts that are based on actual demand and at the same time lower the amount of inventories and easy distribution.

Top management support is an important and critical issue to achieve and maintain a competitive advantage. As there is a continual recognition of the vital role of top management in identifying, exploiting opportunities and making decisions that affect innovation to add value to the businesses (Elenkov, et al., 2005; Ireland and Hitt, 1999; Finkelstein and Hambrick, 1996). Ideal top management shows a deep awareness of its followers needs, and provides an incentive, which is a source of encouragement and motivation for them to innovate and solve problems.

3. RESEARCH METHODOLOGY

RESEARCH DESIGN:

Research design is a plan and structure of investigation so conceived as to obtain answers to the research questions (Cooper, 2008). It serves to ensure that evidence is obtained to enable the researcher get the response to the initial question (Rowley, 2002).

The researcher adopted a descriptive research design in this study. Descriptive survey design is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals (Orodho, 2009). It can be used when collecting information about people's attitudes, opinions, habits or any of the variety of social issues. (Kothari, 2009), posits that descriptive survey design describes the present status of a phenomenon, determining the nature of the prevailing conditions, practices, attitudes and seeking accurate descriptions. The reason for this choice was based on the fact that descriptive designs are the most appropriate for examining the processes by which events unfold, as well as exploring causal relationships and they also provide a holistic understanding of the phenomena (Kitay& Callus, 1998).

TARGET POPULATION:

Stratum and Categorization	Target population
Directors	3
Head of Department	7
Supply Chain Officer	25
Logistics Officer	90
ICT Officer	25
Total	150

4. DATA ANALYSIS, PRESENTATION AND DISCUSSION

RESPONSE RATE:

Response rate is defined as the extent to which the final data sets includes all sample members and is calculated as the number of respondents with whom questionnaires are completed and divided by the total number of respondents in the entire sample including non-respondents (Orodho, 2003).

The researcher targeted 60 respondents from Kenya Power. All questionnaires were filled correctly and returned. This translates to 100%. This commendable response rate was made a reality after the researcher made personal visits to remind the respondent to fill-in and return the questionnaires. This response rate was considered adequate as recommended by Babbie (2002).

RESPONSE RATE:

Response Rate	Frequency	Percent
Response	60	100
Non response	0	0
Total	60	100.0

RESULTS OF PILOT STUDY:

A pilot study was undertaken to pretest data collection instrument for validity and reliability.

According to Orodho (2003), a pilot study is necessary for testing the reliability of data collection instruments. Cooper & Schindler (2001) explains reliability of research as determining whether the research truly measures that which it was intended to measure or how truthful the research results are.

Cronbach's Alpha method was used to check on the reliability and validity of the instruments used by determining the internal consistency of the scale used. Data reliability played an important role towards generalization of the gathered data to reflect the true characteristics of the study problem (Klein & Ford, 2003). Cronbach's Alpha for each value was established by the SPSS application and gauged against each other at a cut off value of 0.7 which is acceptable according to Cooper and Schindler (2008). Cronbach's Alpha is a reliable coefficient that indicates how well items are positively related to one another. The average Cronbach's Alpha value was 0.8239 as shown in Table meaning the items under each variable were consistent.

RELIABILITY TEST:

Variable	Cronbach's Alpha	No of Items
ICT Integration	.875 4	4
Government policy	.942 1	4
Top management support	.7864	4
Reduced lead time	.813 3	4
Procurement performance	.7023	3
Average Cronbach's Alpha	.8239	

DEMOGRAPHIC DATA OF RESPONDENTS:

The respondents were required to indicate their demographic characteristics which included; gender, age bracket, academic level and working experience. The data for the demographic information was presented.

GENDER DISTRIBUTION:

It was established from Table that majority (70%) of the respondents were male while the least were female (30%). The study was however gender sensitive since it obeyed the two thirds gender rule. However, the gender had no influence on the results of the study.

GENDER DISTRIBUTION OF RESPONDENTS:

Gender	Frequency	Percent
Male	42	70.0
Female	18	30.0
Total	60	100.0

AGE DISTRIBUTION OF RESPONDENTS:

The results on age distribution in Table shows that, majority (41.7%) of the respondents were aged below 30 years followed by 25% who were aged 30 – 40 years. The least were those aged 41 – 50 years (13.3%).

AGE BRACKET OF THE RESPONDENTS:

Age in years	Frequency	Percent
Less than 30	25	41.7
30-40	15	25.0
41-50	8	13.3
51-60	12	20.0
Total	60	100.0

PROFESSIONAL QUALIFICATION OF RESPONDENTS:

The professional qualification was sought. Table shows that majority (73.3%) of the respondent had a diploma as their highest level of professional qualification. The least were those with master’s degree (6.7%).

PROFESSIONAL QUALIFICATION OF RESPONDENTS:

Professional qualification	Frequency	Percent
Master’s Degree	4	6.7
Bachelor’s degree	6	10.0
Diploma	44	73.3
Certificate	6	10.0
Total	60	100.0

WORKING EXPERIENCE OF RESPONDENTS:

After seeking the working experience of respondents, it was established from Table that the leading respondents (30.0%) had a working experience of more than 6 years working experience followed by those with a working experience of less than 3 years.

WORKING EXPERIENCE OF RESPONDENTS:

Working experience	Frequency	Percent
Less than 3 years	18	26.7
3 – 4	11	18.3
5 – 6	15	25.0
More than 6	16	30.0
Total	60	100.0

DESCRIPTIVE ANALYSIS:

Descriptive statistics are a set of brief descriptive coefficients that summarizes a given data set, which can either be a representation of the entire population or a sample. The measures used to describe the data set are measures of central tendency and measures of variability or dispersion.

ICT INTEGRATION:

The first objective for this study was to determine the effect of ICT integration on procurement performance at Nakumatt holdings. To achieve this objective, the researcher first sought to establish if the respondents had adopted E-procurement in Nakumatt holdings. It was reported by 100% of the respondents that they all had adopted E-procurement. The researcher further sought to establish the period of time the respondents had been using E-procurement. The results were presented

LENGTH OF TIME ICT HAS BEEN USED:

Length of service in years	Frequency	Percent
Less than 2 years	5	8.3
2 – 3	27	45.0
4 – 5	12	20.0
More than 5 years	16	26.7
Total	60	100.0

shows that majority (45%) of the respondents had adopted ICT procurement for the 2-3 years followed by 26.7% who had adopted it for more than 5 years. The least were 8.3% who had adopted for less than two years. Further the researcher asked the respondents the procurement functions they had handled electronically. It was reported that Nakumatt holdings had been doing the following functions using ICT; handling of purchasing matters, negotiations, making orders, contracting, stock follow up and post purchase review. The respondents also reported that, some of the advantages of ICT procurement includes; less cost in communication, protection against unauthorized spending, its faster, increased productivity and providing visibility into day to day transactions.

This agrees with (Musau, 2015) who argued that ICT in procurement enhances performance of procurement by reducing transaction costs and fragmentation in procurement. This because ICT in procurement is supposed to be an end-to-end solution that integrates and streamlines procurement processes in an organization (Abdi, 2012).

ORGANIZATIONAL POLICY:

The second objective for this study was to investigate the effect of organizational policy on procurement performance at Nakumatt holdings. To achieve this objective, the respondents were first required to indicate whether there was a distinct organizational policy. The results were presented

Presence of distinct organizational policy:

Options	Frequency	Percent
Yes	49	81.7
No	11	18.3
Total	60	100.0

Table shows that majority (81.7%) of the respondents indicated that, there was a distinct organizational policy. The respondents were also required to indicate how the organizational policies were communicated to them.

Mode of communication organizational policies:

Mode	Frequency	Percent
Electronically	5	8.3
Manually	21	35.0
Verbally	34	56.7
Total	60	100.0

Shows that majority (56.7%) of the respondents indicated that the organizational policies were communicated verbally while only 8.3% indicated that communication was done electronically. It was however reported that verbal communication was cost effective compared to the other modes of communication.

The researcher further sought to establish the relationship between organizational policies and procurement performance as presented in Table

This shows that the more the organizational policies are communicated, the higher the procurement performance. These results agree with Kay, (2003) who argued that corporate success derives from a competitive advantage which is based on distinct policy, which is most often derived from the unique character of a firm's relationships with its suppliers, customers, or employees, and which is precisely identified and applied to relevant markets. The results also agree with Teece (1997) who said that the ability to build effective policy is a significant driver of organizational objectives and influences performance to a great extent. Andersen *et al.* (2001) suggest that linking strategic objectives with performance helps with the articulation of causality.

TOP MANAGEMENT SUPPORT:

The third objective for this study was to assess the effect of top management support on procurement performance at Nakumatt holdings. To achieve this objective, the researcher required the respondents to indicate whether they practiced CPFR in inventory management. The results were presented in Table

Those Practicing CPFR:

Option	Frequency	Percent
Yes	55	91.7
No	5	8.3
Total	60	100.0

Table shows that majority (91.7%) of the respondents were practicing CPFR in their inventory management. This shows that the skill of CPFR procurement is being used by most of the Nakumatt holdings workers. The respondents were further required to indicate the extent to which to which they agreed with the given statements in Table

CPFR adoption:

Statement	SA	A	N	D	SD
Top management support in fluencies CPFR adoption	33 (55%)	16 (26.7%)	7 (11.7%)	3(5.0)	1(1.7%)
Top management support influences workers to use CPFR in supply chain	14(23.3%)	26(43.3%)	11(18.3%)	5(8.3%)	4(6.7%)
Top management support in CPFR in Procurement significantly helps reduce quality failure related costs	25(41.7%)	24(40.0%)	7(11.7%)	2(3.3%)	2(3.3%)
Mean Responses	24(40%)	22(36.7%)	9 (11%)	3 (5.5%)	2(6.8%)

Table revealed that majority (55%) strongly agreed and agreed with the statement that, top management support in fluencies CPFR adoption. This was followed by 43.3% who agreed that, top management support influences workers to use CPFR in supply chain and 40% who agreed that top management support in CPFR in Procurement significantly helps reduce quality failure related costs. These results agree with Aragón-Correa, (2007) who argued that the ideal top management shows a deep awareness of its followers needs, and provides an incentive, which is a source of encouragement and motivation for them to innovate and solve problems. According to Tipu, (2013) top management helps employees to address their needs for empowerment, improve personality, accomplish achievement, and enhance self-efficacy. According to Denti, (2012) top management support plays a key role in influencing the adoption of innovational activities in organizations.

LEAD TIME:

The last objective for this study was to examine the effect of reduced lead time by CPFR on procurement performance at Nakumatt holdings. To achieve this objective, the respondents were required to indicate if CPFR procurement reduces lead time. The results were presented in Table.

CPFR procurement and lead time:

Option	Frequency	Percent
Yes	42	70.0
No	18	30.0
Total	60	100.0

Table shows that majority (70.0%) of the respondents indicated that, CPFR procurement reduces lead time while 30% indicated that, it does not reduce. The researcher also requested the respondents to indicate the extent to which they agreed with the statements given in Table

CPFR and lead time:

Statement	SA	A	N	D	SD
Lead time reduction is a key performance indicator in organizations	33(55%)	16(26.7%)	7(11.7%)	3(5.3%)	1(1.7%)
CPFR helps reduce procurement lead time	14(23.3%)	26(43.3%)	11(18.3%)	5(8.3%)	4(6.7%)
CPFR enhances distribution efficiency and effectiveness	15(25%)	20(33.3%)	14(23.3%)	6(10%)	5(8.3%)
Reduced lead time improves customer service	25(41.7%)	24(40.0%)	7(11.7%)	2(3.3%)	2(3.3%)
Mean response	22(36.7%)	22(36.7%)	9(15%)	4(6.7%)	3(5%)

Table shows that, majority (55%) of respondents strongly agreed that Lead time reduction is a key performance indicator in organizations. This was followed by 43.3% who agreed that CPFR helps reduce procurement lead time. It was also established by 40.3% respondents who agreed that educed lead time improves customer service. Finally, 33.3% agreed that CPFR enhances distribution efficiency and effectiveness. The researcher further sought to establish the relationship between CPFR procurement and reduced lead time.

This agrees with Harrigan (2008) who argued that customer satisfaction is realized when quality goods and services are delivered in a timely manner at the right cost. CPFR reduces lead time hence contributing to customer satisfaction through enhancing quality assurance and timely delivery. Using automated, internet based systems ensures strict adherence to quality specifications (Harrigan, 2008). Additionally, seamless communication between procuring entity and supplier's aids supplier to comply with quality standards (Davila, Gupta & Palmer, 2003). **Procurement performance**

The researcher also sought to establish the extent to which the organization achieved the factors indicated in Table as a result of CPFR adoption.

Table as a result of CPFR adoption:

	SA	A	N	D	SD
Improved stock control	28(46.7%)	14(23.3%)	11(18.3%)	5(8.3%)	2(3.3%)
Increased customer satisfaction	26(43.3%)	18(30.0%)	9(15%)	5(8.3%)	2(3.3%)
Increased profit	19(31.7%)	19(31.7%)	5(8.3%)	6(10%)	8(13.3%)
Mean responses	24(40%)	18(30%)	9(15%)	5(8.3%)	4(6.6%)

Table shows that majority (46.7) of the respondents strongly agreed that CPFR adoption had improved stock control. It was also revealed that, 43.3% of the respondents strongly agreed that CPFR adoption increased customer satisfaction. Finally, 31.7% strongly agreed that CPFR adoption increased profit. The findings are in agreement with Shale (2015) who says that e-procurement helps to improve the organizational efficiency and control over the procurement activities and the need. The adoption of CPFR is very important because it helps to streamline all the upstream and downstream procurement processes and improves the visibility of the supply chain as all checks and control can be administered from a central point. Sharing of information is a key driver in ensuring efficient procurement performance.

INFERENCE ANALYSIS:

Inferential statistics infer from the sample to the population. They determine probability of characteristics of population based on the characteristics of the sample. Inferential statistics help assess strength of the relationship between the independent variables and the dependent variables.

CORRELATION MATRIX OF THE STUDY VARIABLES:

The correlation matrix shows the relationship between the dependent and independent variables as shown in Table Correlation is often used to explore the relationship among a group of variables (Pallant, 2010), in turn helping in testing for Multicollinearity. If the correlation values are not close to 1 or -1, this is an indication that the factors are sufficiently different measures of separate variables (Farndale, Hope-Hailey & Kelliher, 2010). It is also an indication that the variables are not multicollinear. Absence of Multicollinearity allows the study to utilize all the independent variables.

CORRELATIONS MATRIX:

		ICT integration	Organizational policy	Top management support	Lead time	Procurement performance
ICT integration	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	60				
Organizational policy	Pearson Correlation	.859(**)	1			
	Sig. (2-tailed)	.000				
	N	60	60			
Top management support	Pearson Correlation	.442(**)	.379(**)	1		
	Sig. (2-tailed)	.000	.003			
	N	60	60	60		
Lead time	Pearson Correlation	.820(**)	.782(**)	.664(**)	1	

	Sig. (2-tailed)	.000	.000	.000		
	N	60	60	60	60	
Procurement performance	Pearson Correlation	.79(**)	.61(**)	.73(**)	.73(**)	1
	Sig. (2-tailed)	.000	.000	.000	0.000	
	N	60	60	60	60	60

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

Shows that there was a very strong positive correlation ($r = 0.79$, $p < 0.05$) between ICT adoption and procurement performance at Nakumatt holdings. This implies that the increase in ICT integration leads to increase in procurement performance and vice versa. There was a very strong positive correlation ($r = 0.61$, $P < 0.05$) between organizational policies and procurement performance at Nakumatt holdings. This shows that the more the organizational policies are communicated, the higher the procurement performance. There was a very strong positive correlation ($r = 0.73$) top management support on CPFPR and procurement performance at Nakumatt holdings. This means that the more the CPFPR the better the procurement performance and vice versa. There is a strong positive relationship ($r = 0.68$, $p < 0.05$) between CPFPR procurement and reduced lead time. This means that the adoption of CPFPR reduces the lead time and consequently improves the procurement performance.

MULTIPLE REGRESSION ANALYSIS:

The researcher finally sought to establish the contribution of each factor to the dependent variable by running a regression analysis. The results were presented in the subsequent Tables. The model summary shows that 85.5% of the variation in the dependent variable (procurement performance) is determined by the CPFPR variables which includes; ICT integration, Presence of distinct organizational policy, top management support, and reduced lead time.

Model Summary:

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.930(a)	.865	.855	.37173

a. Predictors: (Constant), ICT adoption, Presence of distinct organizational policy, top Management support reduced lead time.

ANOVANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	46.767	3	15.589	92.709	.000(a)
	Residual	9.416	56	.168		
	Total	56.183	59			

a. Predictors: (Constant), Those ICT adoption, Organizational policy, Top management support, reduced lead time has been used.

b. Dependent Variable: performance

Analysis of variance (ANOVA) was done to establish the fitness of the model used. The ANOVA table shows that the F-ratio ($F=92.709$, $p=.000$) was statistically significant. This means that the model used was appropriate and the relationship of the variables shown could not have occurred by chance.

Multiple regression Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta	B	Std. Error
	(Constant)	-.866	.269		-3.224	.002
	ICT adoption (X_1)	.160	.236	.070	.679	.000

	Reduced lead time (X ₂)	.127	.109	.085	1.168	.001
	Organizational policy (X ₃)	.434	.099	.513	4.368	.000
	Top management support (X ₄)	.863	.277	.345	3.112	.003

a. Dependent Variable: Procurement performance

Table shows that all the independent variables significantly (P<0.05) determined the change in the dependent variable. The multiple linear equations is $Y = A + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$ and the regression model is; $Y = -0.866 + 0.16X_1 + 0.127X_2 + 0.434X_3 + 0.863 X_4$

Where:

$\beta_1, \beta_2, \beta_3$ and β_4 is the regression coefficient of the independent variables

Y = Dependent variable

A = Constant

X₁ = ICT integration

X₂ = Organizational policy

X₃ = Reduced cost

X₄ = Reduced lead-time

e = Random or stochastic term

This model shows that the top management support has the greatest contribution to the model (0.863). This means that a unit positive change in top management support of CPFR in procurement will cause a change in procurement performance by a factor of 0.863 at 5% significant level which is the greatest contribution in the model. The second contributing variable was organizational policy with a factor of 0.434 implying a unit positive change in organizational policy will cause a positive change in procurement performance by a factor of 0.434 at 5% significant level. This was followed by ICT adoption with a factor of 0.160 at 5% significant level. This means that a unit positive change in ICT adoption will cause a positive change in procurement performance by a factor of 0.160 at 5% significant level. It was however noted that a unit positive change in lead time had the least contribution to the model (0.126). This means that a unit positive change in reduced lead time would change the procurement performance of Nakumatt holdings by a factor of 0.127 at 5% significant level.

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This study investigated the role of collaborative planning, forecasting and replenishment adoption on procurement performance in retail sector in Kenya, a case of Nakumatt holdings. This study sought to evaluate how ICT integration, Organizational policy, Top management support and Lead time in CPFR affect procurement performance in retail sector.

This study adopted a descriptive research design. The target population was 450 consisting of a sample frame of directors, head of departments, procurement and supply chain officers, logistics officers and ICT officers. Using Masuria formula, a sample size for the study was determined. The study used stratified sampling where proportionate sampling was used to determine the specific sample size of each stratum. Self-administered questionnaires were used to obtain primary data while journals, books and e-resources were used to obtain secondary data. Data analysis was done using SPSS V21. Descriptive data was presented using frequency distribution tables.

The regression model revealed that, the top management support had the greatest contribution to the model (0.863). The second contributing variable was organizational policy with a factor of 0.434. This was followed by ICT adoption with a factor of 0.160 at 5% significant level. It was however noted that a unit positive change in lead time had the least contribution to the model (0.127). It was also revealed that, 43.3% of the respondents strongly agreed that CPFR adoption increased customer satisfaction and that 31.7% strongly agreed that CPFR adoption increased profit. Finally, the study established that there was a very strong positive correlation between CPFR adoption and procurement performance at Nakumatt holdings.

ICT INTEGRATION:

The findings have revealed that Nakumatt holdings have embraced ICT Integration to facilitate information sharing with its supply chain partners. The study established that there was a very strong positive correlation ($r = 0.79, p < 0.05$) between ICT adoption and procurement performance at Nakumatt holdings, this is because the organization has put in place adequate measures which ensure that the target groups can access the relevant information pertaining procurement. With CPFR technology in procurement, suppliers can access the procurement offices for any concern they have relating to supplies in Nakumatt thus facilitating for easy, real time and fast dissemination of information.

ORGANIZATIONAL POLICY:

The study also showed that Nakumatt holdings has a distinct organizational policy regulating its employees and other supply chain members in its business operations. It is evident that Nakumatt has embraced the policy of adopting technology based platforms for sharing information among its supply chain partners in line with the diverse and competitive business environment. The study established that there was a very strong positive correlation ($r = 0.61, P < 0.05$) between organizational policies and procurement performance at Nakumatt holdings and which is the ultimate course for its improved procurement performance.

TOP MANAGEMENT SUPPORT:

The study establishes that top management support affects procurement performance at Nakumatt holdings. Top management facilitates financial, human, time and equipment resources necessary for adoption and implementation of CPFR in procurement. There was a very strong positive correlation ($r = 0.73, P < 0.05$) between top management support on CPFR and procurement performance at Nakumatt holdings which is the retail sector in Kenya.

LEAD TIME:

The results have revealed that Lead time reduction has an effect on procurement performance at Nakumatt Holdings. It was established that there was a strong positive relationship ($r = 0.68, p < 0.05$) between CPFR in procurement and reduced lead time. Reduced lead time increases supplier responsiveness to customer demands, reduces levels of inventory in stock which in turn reduces stock holding cost and obsolescence and also facilitates just in time operations. The adoption of CPFR in Nakumatt holdings reduces procurement lead time and consequently improves the procurement performance at large.

CONCLUSIONS:

Following the results of the study, it is worthwhile to conclude that there is a positive relationship between CPFR and procurement performance at Nakumatt Holdings. Through ICT Integration, Organizational policy,

- Top management support and Lead time reduction, Nakumatt has been able to achieve better procurement performance.
- It is thus clear that CPFR adoption in retail sector can be utilized to achieve far more benefits than previously forecasted to achieve without CPFR Practice.
- It provides means for achieving efficiency and control of operations and inventory through application of shared technology to monitor demand, distribution time and quantities.
- It facilitates for customization and effective deliveries thus improving customer and supplier responsiveness.

Given the diverse and the dynamic nature of business environment, organizations have got to adopt policies and support technology based systems that can integrate business process increasing profitability and sustainability.

CPFR adoption has improved procurement performance at Nakumatt holdings which is the leading retail sector in Kenya and can be adopted in other retail sector either government or private to aid in achieving efficiency gains as well as value for money.

RECOMMENDATIONS:

Given the role CPFR adoption have on procurement performance, it is worth that organizations start to view CPFR as strategic in value, that they will not only change the future of their organizations but also impact positively on implementing other procurement strategies in line with dynamic nature of the business environment.

Since most respondents agreed that CPFR adoption has led to increased level of procurement performance, all retail organizations should be encouraged to adopt CPFR practices as it will aid them attain high procurement performance. Government should encourage adoption of CPFR in retail sector whether private or public and all the workers in the supermarkets be trained so that they can apply CPFR on procurement.

The adoption of CPFR plays a critical role in ensuring the success of the organization as it will help to gather and analyze information which will assist the upstream downstream supply chain on the implementation and regulation of the procurement practices. It is therefore critical to understand the effects of changing information technologies on e-procurement usage, business performance, and the achievement of business goals and its regulation. It is significant for the organization to continuously measure the key benefits since it is vital to the successful delivery of a business entity. Measurement drives behavior and is a key to making the change a success (Birks *et al.*, 2001).

SUGGESTIONS FOR FURTHER RESEARCH :

This study was not exhaustive at all and therefore it is recommended that another study be replicated in other retail sectors of the economy, such as Uchumi, Naivas and others. This is because the implementation of CPFR adoption in retail sector is still at primary stage and therefore it provides a rich research field that is still evolving. A similar research in retail sector will also need to be carried out over time to see if they support or contradict the findings of this study.

- ❖ Further research can also be done on; The influence of worker's personal characteristics on the adoption of CPFR in procurement, Factors influencing the adoption of CPFR in procurement in retail sector in Kenya and The role of CPFR in procurement on customer satisfaction.

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