INFLUENCE OF SUPPLIER DEVELOPMENT ON OPERATIONAL PERFORMANCE OF MANUFACTURING FIRMS LISTED IN THE NAIROBI SECURITIES EXCHANGE, KENYA

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Abstract: A global economy is emerging and resources are becoming concentrated on core business activities rather than diversification, which is why there is a move toward outsourcing. Due to the liberal use of suppliers, buying companies have to rely on their suppliers to deliver defect free product in a timely and cost-effective manner. Buyers must ensure that their supplier capabilities match their expectations in order to compete in the competitive market. Approximately one-third of firm production projects fail due to the supplier's underperformance. The purpose of the study therefore will be to evaluate the influence of supplier development on operational performance of selected agro-processing firms listed in the Nairobi stock exchange. Specifically, the study sought to assess how value management, reverse marketing and supplier training affect operational performance of manufacturing firms listed in the Nairobi stock exchange. The study was guided by the Principal Agent Theory, the Utility Theory and the Resource Based View Theory. The study adopted the survey research design. The target population for this study, therefore was management and procurement and operational staff manufacturing firms Nairobi Securities Exchange in Kenya which was 140. The research used the census sampling technique and data will be collected using self-administered questionnaires. The data was analyzed using both descriptive and inferential statistical methods. The descriptive statistics involved the use of frequencies and percentages to help to provide the basic characteristics of the data. Inferential statistics involved the use of correlation and multiple regression models to determine the nature of the relationship between the variables. On the first objective, the study concludes that supplier value management development has a significant influence on operational performance. On the second objective, the study concludes that reverse markets reward a significant impact on operational performance. On the third objective, the study concludes that supplier training have a significant impact on operational performance. The management should have suppliers value management. This will help ascertain the specific areas that suppliers value management Reverse Markets Similarly the managers should put emphasis on it to maintain the positive relationship between suppliers and operations of the company. Managers should train suppliers for effective service delivery which improves performance. Finally, on supplier development in general, management should consider it as influencers of operational performance.

Keywords: Supplier Development, Supplier Value Management Operational Performance, Manufacturing Firms, Nairobi Securities Exchange.

1. INTRODUCTION

Background of the Study

In the manufacturing setting, supplier development is a basic level that involve undertaking evaluation of supplier's performance and giving feedback to them, sourcing from a limited number of suppliers, Parts standardization and Supplier qualification. At advanced stage, provision of equipment or capital, on-site consultation, education and training.
programs, temporary personnel transfer, inviting supplier’s personnel, taken as a whole the transfer of knowledge and qualifications to the supplier firm (Humphreys, 2001).

For any organization to maximize the potential of their procurement function, they must maintain and build relationships with a capable and competent network of suppliers and extract maximum value from these relationships. The aims of supplier development from the organisations perspective are generally to reduce cost, improve quality and delivery, develop new routes to supply, develop new products in the market and also to educate suppliers in a systematic process to keep driving continuous improvement (Lukhoba & Muturi, 2015)

According to CIPS, Supplier development has been defined as the process of working with certain suppliers on a one-to-one basis to improve their performance for the benefit of the purchasing organisation. It involves embracing supplier expertise and aligning it to the buying organisation’s business need, and, where appropriate, vice versa (Bosibori, 2014) According to Wagner and Krause, (2006), supplier development is one of three choices that could be employed to manage problems buying organisations may experience in their supply networks. Problems arising within the supply chain may include a current supplier performing below expectation; a non-competitive supplier base; current suppliers unable to support a firm’s strategic growth; or capable suppliers not available in a certain market (Ahmed & Hendry, 2012) Gonzalez and Quesada (2004) rightly pointed out that supplier development is the most influential management process for achieving product quality and customer satisfaction. To achieve this objective, organizations should put more emphasis on their ability to create and enhance its own capability in a strategically important aspect such as supplier development.

Before undertaking supplier development on any supplier, the purchasing professionals responsible for the project must select the ideal supplier for development based on their current capacity compared to ideal capability, their cooperation with buying organization, product or service supplied, nature and scope of development required. (Simeka, 2016)

Supplier development refers to a program developed by a buying firm to upgrade its supplier’s capabilities and foster ongoing improvements (Krause & Handfield, 2007). Supplier development is the process of working with certain suppliers on a one-to-one basis to improve their performance (and capabilities) for the benefit of the buying organization in its operational performance. It can take the form of a one-off project or an on-going activity that may take some years to come to fruition. Joint buyer/supplier development activity to improve the integrated performance and capabilities of both the supplier and the buyer is more commonly referred to as partnering. Both supplier development and partnering are subsets of relationship management (Ghijsen, Semeijn & Ernstson, 2006).

The major driving force for development of suppliers is the competitive pressures of the marketplace, and it is through the decisions of many individual purchasing departments that this force acts. As market places go from local to national to global, the strength of this competitive force dramatically increases. Handfield et al (2000) believe that it is best to view supplier development as a long-term business strategy that is the basis for an integrated supply chain. Supplier development is, at its simplest level, about giving regular feedback of the supplier’s performance as experienced by the buyer’s organization, together with any customer complaints. This information can often, in and of itself, provide a strong incentive for suppliers to improve their performance, particularly in areas such as delivery reliability and lead times; this can be done through supplier training.

Supplier development is mainly focused on the effects that affect the product aspects as well as the supplier’s capabilities. This basically involves improvement of product aspects which include; quality, design, reliability, safety and conformance as well as total ownership cost of the product. In supplier capacity aspects, supplier development basically works to improve and enhance supplier’s performance related with; increased production capacity, shorter product development cycle, productivity, research and development, improved and reliable processes, shorter delivery lead times, flexibility and overall organizational visibility to the buying organization by adoption of information interchange (Wagner & Krause, 2009).

Global, Regional and Local Perspectives of Manufacturing Firms

Manufacturing is to make or process (a raw material) into a finished product, especially by means of a large-scale industrial operation. According to Awino (2011) manufacturing is an important sector in Kenya and it makes a substantial contribution to the country’s economic development. It has the potential to generate foreign exchange earnings through exports and diversify the country’s economy. This sector has grown over time both in terms of its contribution to the country’s gross domestic product and employment (Magutu, 2014) The manufacturing sector in Kenya constitutes 70 per
percent of the industrial sector contribution to GDP, with building, construction, mining and quarrying cumulatively contributing the remaining 30 per cent. Kenya Vision 2030 identifies the manufacturing sector as one of the key drivers for realizing a sustained annual GDP growth of 10 per cent. The key challenges facing the sector include low value addition, limited diversification, high costs of production and influx of counterfeits. (KIPPRA, 2013)

Manufacturing Firms Listed at the Nairobi Securities Exchange

The industry has several manufacturing firms some of which are listed in the Nairobi Securities Exchange. Their organizational performance relative to the supplier performance is, therefore, critical to the success of the industry in the country. NSE was constituted as a voluntary brokers’ association in 1954, it is registered under the Societies Act. It was not until 1988 that NSE was privatised. In 2006, the ANSE implemented Automated Trading System (ATS) to enable live trading on the basis of first come first served. This system was also linked to the Central Depository System (CDS) and the Central Bank of Kenya to facilitate trading in Government bonds. Since then, it has undergone various changes and innovations, including the abolishment of the aggregate foreign ownership cap of the NSE listed companies in 2015. The Capital Markets Authority (CMA) is the state regulatory body mandated with licensing and regulating the Nairobi Securities Exchange.

Public listings and offers of securities issued and traded at the ANSE are also approved by the CMA (ANSE, 2017). There are presently 8 Manufacturing companies registered at the NSE. The 8 listed Manufacturing entities are; BOC Kenya, British American Tobbaco, Carbacid investment East African breweries, Flame tree group, Kenya orchards, Mumias and Unga group.

Operational Performance

Operational performance refers to the alignment of all business units within an organization to ensure that they are working together to achieve core business goals (Bielen & Demoulin, 2007). Operational performance is focused on improving efficiency and effective systems which are reliable and can ensure excellent which exceed customer expectations. To get such sustainable operational results, operations strategy is developed which supports the organization in ensuring the key operational aspects of the firm are met; cost reduction, speed of product development and production, flexibility of the production system and quality assurance for the product (Wiley, 2010). As business organizations compete in the market place where prices are driven by the market forces, most of the firms seek to device other means of influencing customers to buy their products. This will call for methods like lowering product cost, reducing lead times, improving quality of product, showing sincere attention to safety and environmental protection etc.

Operational performance includes: product/service quality, lead time/service completion time, product development time, utilization of resources, responsiveness to customer demand, and operational cost. Different organizations develop different metrics for measuring their business performance. However, the key and universal metrics adopted across all sectors to measure their operational performance include the following: Product cost directly affects the overall profit margin, this is because the product price is a combination of the total product cost, others and the markup.

Statement of the Problem

In many agro-processing based firms, the issues of supplier performance are very important. Firms need to know that regular supply of quality input can provide operational value which translates to lower costs, improved quality, on time delivery technological innovation, and customer service (Blonska, Rozemeijer & Wetzels, 2008). Reverse marketing has been associated with improved supplier buyer relationship particularly reduced affective conflict, clear communication, reduced cost of service, improved product quality, service support and delivery performance (Leenders & Blenkhorn 2008). Supplier training as proposed by (Li et al, 2008) is associated with improved supplier performance and buying organization requirements met through closer feedback, reduced cost, improved quality and adaptation of ever-changing technology. The deployment of these approaches may lead to enhanced performance especially at the operational level. However, the success in the supplier development is not a foregone conclusion. Approximately one-third of firm production projects fail due to the supplier’s underperformance (Shrimali, 2010). There is paucity of empirical literature regarding supplier value management on the procurement performance of firms while reverse markets in relation to supplier development and the eventual coANSEquences on firm performance has also not been given considerable empirical attention. Research on supplier development on operational performance of manufacturing firms is scarce. Lukhoba and Muturi, (2015) studied supplier development effect on procurement performance in manufacturing firms in Kenya, Mwesigwa and Nondi (2018) looked at the effect of supplier development on procurement performance at world
Research Objective

To assess how supplier value management influences operational performance of manufacturing firms listed in the Nairobi securities exchange, Kenya.

Research Hypothesis

i) \( H_{01} \): Supplier Value management does not significantly affect operational performance of manufacturing firms listed in the Nairobi securities exchange, Kenya.

Significance of the Study

A firm’s understanding of the influence of supplier development on operational performance is of critical importance to the investor and the policy makers. Therefore, the outcome of this study will provide insight to the various cadres of management within the procurement sector and help them approach the issues of supplier development in a much more professional manner. The results will enlighten other stakeholders in the sector on matters of supplier development and hopefully derive effective solutions to the supply chain management and valuation of inventory to mitigate possible losses.

The study will also address the governments concerns over the need to attract investments and spur equity growth in the inventory market to avoid high firm leverages that increase borrowing rates and also deny it essential revenue in form of taxes. Lastly, the outcome of this study will serve as an important building block to the studies being done on managing suppliers in the country.

Scope of the Study

The study was conducted in manufacturing companies listed in Nairobi stock Kenya. The study targeted the employees in this firms who were used to carrying out key organizational decisions relating supplier development and operational performance to give their perception responses for the study. The researcher targeted a sample population of 140 employees who were selected using census. The study used a sample size of 135 out of 140 target population. The period in which data from the Company was collected covered from January 2020 to December 2020. The study focused on the influence of supplier development on operational performance of selected agro-processing firms listed in the Nairobi stock exchange. Special reference was made on Supplier value management, reverse marketing and supplier training in operational performance.

Limitation of the Study

The study experienced respondents withholding vital information in one way or another therefore the researcher had to assure the participants the confidentiality so that they could freely share the information more so the formal letter obtained from the University supported the idea too hence it reduced the aspect of being victimised after the study.

The other challenge was questions were raised by the respondents how the study would be important to them the researcher had to assure them that she was ready to share the findings with the organization so that it may help in implementing policies that would see the organization improve the performance hence it brings sustainability in employment

2. LITERATURE REVIEW

Theoretical Review

In this section, the various theories pertinent to the issue of supplier development and firm performance are discussed in order to give the study the necessary theoretical orientation.

The Resource Based View Theory (RBVT)

According to Barney (1991), an organization’s investment in its suppliers can be a source of sustainable competitive advantage and high performance. This implies that firms develop its suppliers, through supplier development and that this allow them to exploit opportunities or neutralize environmental threats to a greater extent than their competitors. Thus, for
the advantages created by a firm’s investment in its suppliers to be sustained over time, its employees must remain committed to the organization. As a result, with the development of suppliers it will improve operational performance. This means that if the organization can develop its suppliers’ skills, knowledge, abilities and competencies, this will be for their competitive advantage and suppliers will be confident and motivated and reciprocate by becoming loyal and committed to the organization. This theory applies to the relationship between supplier development and operational performance in the sense that, rather than forcing supplier development would create conditions necessary to facilitate voluntary supplier involvement and identification with organizational goals (Barney, 1991).

The Resource Based View Theory (RBVT) explains that organizations have no relations and they have operational differences and achieve reasonable benefits as a result of exceptional resources and capabilities that cannot be substituted (Barney, 1991 and Peteraf, 1993). Major firms’ resources are technology, organizational knowledge, and managerial skills and firms facility. The RBVT mainly focuses on internal resources owned. The concept later was expanded to deliberate more on the SCMP and performance, which help firms to gain competitive advantage and improve performance, this concept brought about the Relational View Theory (RVT) (Dyer & Singh, 1998). The RVT considers relations as a basis of operational performance, resource such as knowledge interchange, lower cost of transactions, firms’ facilities and other rare resources.

The RVT theory gives a better interpretation of the effect of SCMP and performance on its operation. These practices are quality and level of the information sharing, Outsourcing, supplier and customer relationship. Resource dependency theory (RDT) assumes that business partners do exchange important resources with a mutual dependency from external environment (Jeffrey Pfeffer and Gerald Salancik 1978). Resources such as capital, knowledge and raw material are some of the resources that firms rely on for success of their operation. Outsourcing is considered as a way of gaining access to these external resources that are unavailable to the firm and this enable firms to identify what resources is needed from external organization. The RDT emphases that obtained external resources impact on operational performance.

**Empirical Review**

**Value Management in Supplier Development**

Supplier value management plays a key role in enabling many of world’s best-performing procurement teams to find, develop, collaborate with and manage suppliers. At the core of value management is a unique supplier-centric approach that integrates supplier lifetime value throughout the entire strategic procurement process. The approach, which is unmatched in the industry, prioritizes the supplier relationship, and in turn, reaps significant competitive advantages for the buyer (Anderson & Weitz, 1992).

Value management may be defined as the systematic and creative process through which the life-cycle value of a facility is enhanced by co-ordinated and collective effort from the whole supply chain. This is achieved by the identification, prioritization and incorporation of client defined values into the final design solutions. Value management, in particular value analysis, is a key part of supplier development. Value analysis can be used to reduce the cost of a product or service without diminishing the operational value; other objectives might include reducing time to market, improving environmental performance or improving quality. Value engineering is another aspect of value management used in supplier development projects and is similar to value analysis but it takes place before a new product is finalized (Błonska, Rozemeijer & Wetzels, 2008).

Value management (VM) is considered to be a process, as opposed to a simple technique, because it is both an organized approach to improving the profitability of product applications and it utilizes many different techniques in order to achieve this objective (Clarke, 2007). The techniques that support VM activities include ‘common’ techniques used for all value analysis exercises and some that are appropriate under certain conditions (appropriate for the product under consideration). The VM approach is almost universal and can be used to analyze existing products or services offered by manufacturing companies and service providers alike. For new products, the Value Engineering (VE) approach, which applies the same principles and many of the Value Analysis (VA) techniques to pre-manufacturing stages such as concept development, design and prototyping, is used (Blendenbacj-Driessen, 2009).

At the very heart of the VM process review is a concern to identify and eliminate product and service features that add no true value to the customer or the product but incur cost to the process of manufacturing or provision of the service. As such, the VM process is used to offer a higher performing product or service to the customer at a minimal cost as opposed to substituting an existing product with an inferior solution. This basic principle, of offering value at the lowest optimal cost of production, is never compromised.
It is the principle that guides all actions within the VM process and allows any improvement ideas to be translated into commercial gains for the company and its customers. The VM process is therefore one of the key features of a business that understands and seeks to achieve Total Quality Management (TQM) in all that it does to satisfy customers (Ghijsen, Semeijn & Ernstson, 2006). Total value management (TVM) is a comparative cost metric that quantifies the overall cost of each acquired unit relative to the overall value of the spend category as it relates to the organization’s sourcing strategy and supply chain goals.

SVM refers to defined processes such as supplier segmentation, supplier assessments, supplier qualification, risk assessments and performance (KPI), compliance levels, certifications and building strategic partnerships. It also has direct financial implications for equity and annual revenue. Existing research shows that you can gain approximately 0.5% to 3% additional savings by applying SVM practices in RFPs/RFQs. Firms should rethink on of SVM as the ultimate solution in sourcing and contracting key supplier partners. The goals of SVM are to achieve continuous improvement between buying and selling organizations and to rival or set benchmarks for best practices in the industry. The SVM program focuses on the three P’s: partnerships, process and practices.

It focuses on third party relationships that meet the buying companies’ objectives and culture in order to be effective in the operating environment. Processes involve the use of pragmatic gears to accomplish desired outcomes for example having a proper governance structure which guides both the short- and long-term goals of the project, monitoring and measurement processes and communications processes. Practices on the other hand includes relationship development, team building, decision making, problem solving, communications and implementation. Through an honest assessment of how the program or project is running.

The TCO model looks at the total quantifiable cost – as defined by the direct costs (such as unit, transportation, and tariff), indirect costs (such as switching and transaction), and market costs (such as quality and brand) whereas, the TVM model looks at the value to cost ratio by also including the potential impact costs with each decision (Ghijsen, Semeijn & Ernstson, 2006). For example, a myopic focus on short term savings could actually lead to a loss in future years if the lowest cost supplier today is using antiquated production technology compared to a slightly higher cost supplier who just introduced new production technology that is going to allow for reduced production costs over time (Giannakis, 2008). In other words, TVM also looks at impact costs, risk mitigation (by way of constraints), and strategic alignment with the business goals with an emphasis on choosing the decision that is expected to maximize business value in the future.

Value management is enjoying a renewed popularity as competitive pressures are forcing companies to re-examine their product ranges in an attempt to offer higher levels of customization without incurring high cost penalties. In parallel, many major corporations are using the VM process with their suppliers to extend the benefits of the approach throughout the supply chain. Businesses, big and small, will therefore benefit from understanding and applying the VM process. It is likely that those companies that do not take the time to develop this capability will face an uncertain future as the lessons and problems of the past are redesigned into the products of the future (Krause et al., 2007).

Most markets require suppliers to offer a range of products and to continuously increase this offering. To avoid an explosion in the number of unique parts associated each new product many companies have introduced standard components, platform strategies and supplier rationalization programmes (Matook, Lasch & Tamaschke, 2009). The ability to design products is seen as key to maintaining the quality, cost and delivery performance of the product. Some customers, especially those in mature markets, need to continuously reduce the costs of products in order to compete against comparatively cheaper imports. The increasing trend, across Europe, for businesses to ‘buy in’ rather than ‘make’ all the elements of a product means that new suppliers of materials must be educated in the VA process in order to use the specialist skills of the supplier to reduce the costs of supplied materials continuously.

VM is often used to combat the perpetual and expected price reductions between a supplier and a customer. Therefore, as a protective measure many businesses employ VA to reduce costs and to protect their own profit margins (Nilsson & Soderstrom, 2005). One of the best approaches to VM is simply to select an existing product that is sold in relatively large volumes. This product, or product family, will tend to have a great deal of the basic information, and documented history, which can be used quickly as opposed to a newly introduced product where such a history is not available. An existing product unites all the different managers in a business, each with an opinion and list of complaints concerning the ability to convert the design into a ‘saleable’ product (Nelson, Moody & Stegner, 2005).

Therefore, any team that is created for the purpose of VM will understand their own problems but not necessarily the cause of these problems across the entire business. These opinions regarding poor performance (and documented evidence
of failures) are vital to the discussions and understanding of how the product attracts costs as it is converted from a drawing to a finished product. These discussions therefore allow learning to take place and allow all managers to understand the limitations to the scope of product redesign and re-engineering activities. These issues include the high levels of purchased costs may imply a need to engage with suppliers in the VM process. This initiative will be constrained by a number of issues such as the timing of the project, the availability of resources from the supplier, the location of the suppliers, and other constraints (Lia, Humphreys, Yeung & Cheng, 2007)

**Conceptual Framework**

Conceptual framework is a concise description of the phenomenon under study accompanied by a graphical or visual depiction of the major variables of the study (Mugenda, 2008). According to Young (2009), conceptual framework is a diagrammatical representation that shows the relationship between dependent variable and independent variables. In the study, the conceptual framework will look at the influence of supplier development on firm performance focusing on selected manufacturing firms in Nairobi stock exchange.

<table>
<thead>
<tr>
<th>Supplier Value Management</th>
<th>Operational Performance</th>
</tr>
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<tbody>
<tr>
<td>• Supplier Segmentation</td>
<td>• Cost reduction</td>
</tr>
<tr>
<td>• Supplier Evaluation</td>
<td>• Quality Product/Service</td>
</tr>
<tr>
<td>• Collaboration</td>
<td>• On time delivery (lead time)</td>
</tr>
<tr>
<td>• Information Exchange</td>
<td>• Engagement level</td>
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</table>

**Indepent Variable**

**Dependent Variable**

![Conceptual Framework](image)

**Figure 2.1: Conceptual Framework.**

**Critique of the Existing Literature relevant to the Study**

A study concerning the effect of supplier development was carried out by Ghijsen et al., (2006), it was established that when the buyer actively sought out the supplier it reduced conflict between the relationship manager and the potential buyer. In a random sample of 1600, they took from buyers and suppliers, they also found that the majority of businesses actually had a policy for reverse marketing (Ellis, Henke & Kull, 2012).

A study by Clarke 2007 showed 95% of the business unit’s sampled indicated supplier contributions were increasing in terms of importance. There was a 232% increase in people from 1989-1990 who agreed with the statement that suppliers are extremely important to the achievement of competitive market strategies. A study from Harvard University concluded that the primary reason for declining USA competitiveness is that US companies invest less in supplier relations and development (Monczka et al., 1993). Supplier development activities were transferred to the USA as foreign buying firms commissioned their own plants in the USA due to government regulations and supply chain efficiencies. By 1996, General Motors had completed supplier development projects with over 2000 suppliers and claimed productivity improvements over 50%, lead time reduction of up to 75% and inventory reduction of 70% (Clarke,2007; Hartley & Choi, 1996). By 2001 John Deere was involved in 426 different projects with 92 different supplier development engineers and delivering annual saving of $700,000 along with improvements in quality, cost and delivery. By 1994, Allied-Signal saved $300,000 from supplier development activities and increased its share price (Monczka et al., 1993). At Deere and Delphi, a $100,000 investment in supplier development yielded at least three to ten times the original investment (Nelson, Moody, & Stegner, 2005). This illustrates that large firms adopted supplier development and it became a strategic tool for them to improve quality, reduce cost and improve the delivery.

Leenders and Blanhorn (1988) discussed the reverse marketing and argued that SCM can be improved with the existing suppliers. Blonska, Rozemeijer and Wetzels (2011) carried out a study on the influence of supplier development on gaining a preferential buyer status, supplier adaptation and supplier relational embeddedness. Their findings revealed that the relationship between supplier relational embeddedness and a buyer’s investments in supplier development are partially mediated by supplier trust, satisfaction (economic) and commitment (affective). Supplier relational embeddedness is an important mediator between investments in supplier development and gaining preferential buyer status that eventually effects in supplier adaptation.
The data gathered from 527 purchasing executives in a study by Krause (1997) on supplier development revealed that supplier development attributed to timely delivery, completed orders, reduction in defects & scrap and reduced order cycle time. Research by (Blonska, Rozemeijer, & Wetzels, 2008) established that supplier development encourages preferential buyer status and supplier adaptability. Supplier adaptation is perceived as a goal of supplier development aimed at supplier performance improvement (Blonska et al., 2008). With the help of two in depth case studies, (Reed & Walsh, 2002) established that supplier development activities enhance technological capabilities in their suppliers. Also, some of the firms expected technological improvement follows from improved business processes. Supplier development also helped in developing mutual trust between buyers and suppliers (Reed & Walsh, 2002). BMW strives to be 20% above industry average in quality performance. Management believed supplier development made it possible to attain that quality standard and increase in revenue (Rhodes, Warren, & Carter, 2006).

Research by (Lascelles & Dale, 1989) utilizing survey respoANSEs from UK based suppliers to 3 major customers in automotive industry illustrated that poor communication and feedback, unstructured quality improvement programs, credibility of buyers, misconceptions regarding purchasing power and supplier satisfaction were the foremost barriers in the supplier development programs. Also, in an empirical study with 89 minority goods and service providers (Krause, Ragatz, & Hughley, 1999) demonstrated that the main barriers towards minority owned supplier development were poor communication, non-profit situation and racial biases. Results also indicated that small minority owned suppliers were less positive about supplier development activities as compared to large minority owned suppliers (Novak, 2008). Another survey (Handfield R. et al., 2000) on supplier development strategies with 84 companies established several other barriers apart from those already mentioned that deter supplier development strategies. It included lack of supplier commitment, insufficient supplier resources, lack of trust, and poor alignment of organizational cultures, unsupportive upper management and insufficient inducement to suppliers. Research by (McDuffie & Helper, 1997) established that supplier development might fail if suppliers do not have a strong identification or if suppliers are not dependent on buyers. Another major barrier towards supplier development is the difference between perceptions of buyer and suppliers about supplier development practices. These differences in perception are due to a disparity in understanding the preference, intention, and process of a supplier development program (Forker, Ruch, & Hershauer, 1999). A supplier might agree initially but later fail to implement due to a difference in understanding.

Gitau (2013) study on factors affecting the development of local suppliers in the ministry of roads, Nairobi Kenya revealed that the Ministry of Roads and other Public organizations need to align their information flow to local supplier development policy; implement procurement ethics in all their procurement proceedings; implement fully the public procurement Act 2005 and Regulation 2006 which encourages the development of local supplier through fair and competitive bidding and also have local supplier treatment policy put in place. Kemunto and Ngugi (2014) studied the influence of Strategic Buyer Supplier Alliance on Procurement Performance in Private Manufacturing Organizations focusing on Glaxo Smithkline. A sample size of 25 respondents of the targeted 100 staff participated in the study. Data was collected using questionnaires and administered through the drop and pick method. Analysis was done using a SPSS statistical package. Descriptive statistics were used to summarize data and results presented using frequency distribution and tables. The findings of the study revealed that strategic buyer supplier alliance influences procurement performance. The study indicated that governance structure was the main factor in the relationship between procurement performance and strategic buyer supplier alliance.

3. RESEARCH METHODOLOGY

Research design

The study adopted the survey research design. A survey may focus on opinions or factual information depending on its purpose, but all surveys involve administering questionnaires to individuals. Survey research design is an efficient method for systematically collecting data from a broad spectrum of individuals and educational settings. A survey design involves asking a large group of respondents’ questions about a particular issue. The researcher can then use statistical techniques to make conclusions about the population based on the sample. The design is appropriate because it is used to assess the opinions and attitude on events people and procedures (Mugenda & Mugenda, 2009). The design is deemed appropriate for this study since it makes it possible to collect a large amount of data on the study problem from a large population of firms with minimum effort. It could also enable generalizations to be made on the outcome of the study.
Target Population

The target population is members of a real or hypothetical people to whom a researcher wishes to generalize the results of the study (Gall, Borg & Gall, 2003). The target population for this study, therefore, is the management and procurement and operational staff of manufacturing firms listed in the Nairobi securities exchange in Kenya as per appendix v . According to KAM (2016). There are eight manufacturing firms categorized as Manufacturing firms listed in the Nairobi securities exchange which according to this study includes BOC Kenya, British American Tobbaco, Carbacid investment East African breweries, flame tree group, Kenya orchards, Mumias and Unga group.

Sampling and Sampling Techniques

Sampling may be defined as the selection of some part of an aggregate or totality on the basis of which a judgment or inference about aggregate or totality is made. In other words, it is the process of obtaining information about an entire population by examining only a part of it (Kothari, 2004). Frankel and Wallen (2000) defined sampling as a procedure of selecting members of a research sample from the accessible population which ensures that conclusions from the study can be generalized to the study population. A sample is a smaller group obtained from the accessible population and each member has equal chance of being selected to be a sample. It is also a finite part of a statistical population about the whole (Mugenda & Mugenda, 2009). The research used the census sampling technique where all elements of the population are considered (Kombo & Tromp, 2006). Table 3.1 gives a sampling frame used to obtain a sample size for the study.

<table>
<thead>
<tr>
<th>Respondent type</th>
<th>Population (Sample)</th>
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<tbody>
<tr>
<td>Management (Procurement, Supplier Chain, Operational managers)</td>
<td>20</td>
</tr>
<tr>
<td>Procurement Staff</td>
<td>65</td>
</tr>
<tr>
<td>Marketing Staff</td>
<td>55</td>
</tr>
<tr>
<td>Total</td>
<td>140</td>
</tr>
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</table>

Source: KAM (2016)

Research Instruments

The study used primary data which was collected directly from the respondents using the research instruments while secondary data was collected in form of records from reports and other relevant publications. Permission to conduct this research will be sought from the relevant authorities and the firms in advance. The study will use self-administered questionnaires (see Appendix II) as data collecting instruments. Closed ended items were used in the questionnaire. The selection of these tools has been guided by the nature of data to be collected, time availability and the objectives of the study. It has quite a number of advantages which include: confidentiality; time saving; and reduced interviewer bias. Questionnaires also have the advantages of low cost, easy access, physical touch to widely dispersed samples (Fowler, 1993) and also the fact that the results are quantifiable. However, the use of questionnaires requires careful preparation as it could easily confuse the respondents, or discourage them, or simply fail to capture important information needed in the study (Mugenda & Mugenda, 2009). This will enable the researcher to reduce both researcher and respondent biases.

Pilot test

Cooper and Schindler (2008) assert that a researcher should do a pilot test of data gathering tools before proceeding with the research. The objective of piloting was to detect any ambiguities in the questions, identifying problems in research methodology and data gathering techniques. Pick and drop method was used to administer the questionnaires to 10 respondents in West Kenya Sugar and Mudete Tea Company who did not take part in the study to evaluate the survey questionnaire for flow of questions, accuracy clarity, readability and understand ability of the research instruments to be used in this study. The reliability of the instruments was established using the Cronbach Alpha Coefficient tests. The Cronbach Alpha Coefficients for the questionnaires of employees was (α = 0.839; df= 9), indicating high level of reliability. The researcher also sought voluntary information on improvement of the research instruments from colleagues and the supervisor at JKUAT. From their comments and the Cronbach Alpha Coefficient results, the instruments were refined through re- wording to ensure validity and reliability.
Data Collection Procedures

Both for legal and ethical considerations, the researcher will obtain a permit before embarking on the actual study. Care was taken to ensure that the data is scored correctly, and systematic observations made. Primary data was collected mainly utilizing quantitative and qualitative methods to obtain in depth information of the study variables. Every respondent will be approached through the management separately and handed the questionnaires to fill in his own time. The questionnaires were then being collected at a later date specified to the respondents.

Reliability

Reliability is the measure of the consistency of the results from the tests of the instruments. It is a measure of the degree to which a research instrument yields consistent results or data after repeated trials. Internal consistency will be employed by the study to check the reliability of the research instruments. This will be done by calculating the Cronbach’s alpha coefficient for all the sections of the questionnaire from the results of the pilot study. The tests for internal consistency will be accepted using the Cronbach’s alpha above α = 0.70. According to Cronbach and Azuma (1962) a value of the Cronbach’s alpha coefficient above 0.7 shows high internal consistency and thus deemed acceptable for study purposes.

Validity

Validity is the accuracy and meaningfulness of inferences, which are based on the results. It is a measure of how well a test measures what it is supposed to measure. It is concerned with the accurate representation of the variables under study. It is influenced by systematic error in data. The study will adopt content validity to show whether the test items represent the content that the test is designed to measure (Mugenda & Mugenda, 2009). In order to ensure that all the items used in the questionnaires are consistent and valid, the instruments will be subjected to scrutiny and review by experts in JKUAT. The items that will be found to be inconsistent will be rephrased and modified to avoid ambiguity before being used for data collection.

Data processing and analysis

After retrieving the questionnaires from the respondents, the questionnaires will be first sorted and the data in them will be edited and then coded before being entered into the computer software, Statistical Package for Social Sciences (SPSS) version 25 for further analysis. The data will then be analyzed using both descriptive and inferential statistical methods. The descriptive statistics which involves the use of frequencies and percentages will help to provide the basic characteristics of the data. Inferential statistics involving the use of correlation and multiple regression models will be used to determine the nature of the relationship between the variables.

The multiple regression model was assumed to hold under the equation;

\[ y = b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 + e \]

Where;

Y= Operational Performance

\( b_0 = \) Constant

\( x_1 = \) Supplier Value Management

\( x_2 = \) Reverse Markets

\( x_3 = \) Supplier training

\( b, c, d \) and \( e \) are the coefficients of the variables determine by the model

\( e = \) the estimated error of the regression model

4. RESEARCH FINDINGS AND DISCUSSIONS

Response Rate

A total of one hundred and forty (140) respondents participated in the study. The summary of the questionnaire return rate is as shown in Table 4.1.
This represented a questionnaire return rate of 96.42% of the sample size and falls within the confines of a large sample size (Mugenda & Mugenda, 2003).

**Demographic Characteristics of the Respondents**

The study sought to establish general information regarding the following aspects of the respondents: age and how long they have been working their firms

**Age groups of the respondents**

Age groups of the respondents were also investigated. Results are as indicated in Table 4.2.

**Table 4.2: Age of the respondent**

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 20 years</td>
<td>7</td>
<td>5.2</td>
</tr>
<tr>
<td>20-30 years</td>
<td>29</td>
<td>21.5</td>
</tr>
<tr>
<td>31-40 years</td>
<td>49</td>
<td>36.3</td>
</tr>
<tr>
<td>40-50 years</td>
<td>44</td>
<td>32.6</td>
</tr>
<tr>
<td>Above 50 years</td>
<td>6</td>
<td>4.4</td>
</tr>
<tr>
<td>Total</td>
<td>135</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Years Worked in the Firm**

**Table 4.3: Years worked in the firm**

<table>
<thead>
<tr>
<th>Years Worked</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1-2 years</td>
<td>22</td>
<td>16.3</td>
</tr>
<tr>
<td>2-3 years</td>
<td>31</td>
<td>22.9</td>
</tr>
<tr>
<td>3-4 years</td>
<td>28</td>
<td>20.8</td>
</tr>
<tr>
<td>4-5 years</td>
<td>40</td>
<td>30.0</td>
</tr>
<tr>
<td>More than five years</td>
<td>14</td>
<td>10.0</td>
</tr>
<tr>
<td>Total</td>
<td>135</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Supplier Value Management Influences Operational Performance of firms listed in the Nairobi securities exchange, Kenya.**

Descriptive analysis of the responses on Supplier value management influences operational performance of agro-processing firms listed in the Nairobi securities exchange, Kenya. In the scale of 1-5 (where 1=not at all, 2=to a little extent, 3=to a moderate extent, 4=to a great extent, 5=to a Very Great Extent)

**Table 4.4: Descriptive Statistics Supplier Value Management Influences Operational performance**

<table>
<thead>
<tr>
<th>Description</th>
<th>N</th>
<th>Not at all (%)</th>
<th>To a little extent (%)</th>
<th>Moderate (%)</th>
<th>To a great Extent (%)</th>
<th>To a very great extent (%)</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through value management of its suppliers, the firm have been able to reduce its costs without diminishing the operational value</td>
<td>135</td>
<td>14 (10.4)</td>
<td>19 (13.8)</td>
<td>28 (20.4)</td>
<td>54 (41.5)</td>
<td>19 (13.9)</td>
<td>4.21</td>
<td>1.21</td>
</tr>
<tr>
<td>Value management in its firm means that the firm keep its high standards of value in spite of the changes in the supply chain</td>
<td>135</td>
<td>6 (4.2)</td>
<td>17 (12.8)</td>
<td>31 (22.8)</td>
<td>63 (46.7)</td>
<td>18 (13.5)</td>
<td>4.15</td>
<td>1.132</td>
</tr>
<tr>
<td>Value management helps the firm to avoid unnecessary delays in accessing the markets</td>
<td>135</td>
<td>16 (11.8)</td>
<td>16 (12.1)</td>
<td>38 (28.0)</td>
<td>45 (33.6)</td>
<td>20 (14.5)</td>
<td>3.16</td>
<td>1.220</td>
</tr>
</tbody>
</table>
Value management has enabled the firm to improve on the environmental performance of its products. Its suppliers know the quality of products the firm use and their environmental requirements. We at times agree with its suppliers on some value aspects that need to be incorporated before the final product is realized.

Through value management of its suppliers, the firm have been able to reduce its costs without diminishing the operational value (mean = 4.21; Std dev= 1.21). Value management in its firm means that the firm keep its high standards of value in spite of the changes in the supply chain (mean = 4.15; Std dev= 1.132). Value management helps the firm to avoid unnecessary delays in accessing the markets (mean = 3.65; Std dev= 1.263). Its suppliers know the quality of products the firm use and their environmental requirements (mean = 4.24; Std dev= 1.155). We at times agree with its suppliers on some value aspects that need to be incorporated before the final product is realized (mean = 3.98; Std dev= 1.321).

Inferential Statistics Analysis

Table 4.5: Correlation analysis of the study variables

<table>
<thead>
<tr>
<th></th>
<th>Operational performance</th>
<th>Supplier management</th>
<th>value</th>
<th>Reverse markets</th>
<th>Supplier training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational performance</td>
<td>Pearson Correlation</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplier value management</td>
<td>Pearson Correlation</td>
<td>.006</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reverse Markets</td>
<td>Pearson Correlation</td>
<td>.226*</td>
<td>.100*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Supplier training</td>
<td>Pearson Correlation</td>
<td>.452*</td>
<td>271.*</td>
<td>.009</td>
<td>1</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (1-tailed).

Collinearity is the measure of the degree of association between the variables. Serial correlation was performed using the Durbin Watson test statistic. The summary of the findings is as shown in Table 4.6.

Table 4.6: Summary Table on Collinearity Tests

<table>
<thead>
<tr>
<th>Supplier Development</th>
<th>Collinearity statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier value management</td>
<td>1.547</td>
</tr>
<tr>
<td>Reverse markets</td>
<td>1.914</td>
</tr>
<tr>
<td>Supplier training</td>
<td>1.718</td>
</tr>
<tr>
<td>Durbin Watson (D-W) statistic=1.791</td>
<td></td>
</tr>
<tr>
<td>Operational performance</td>
<td>1.628</td>
</tr>
</tbody>
</table>

Study findings shows that there is a positive autocorrelation as depicted by (D-W=1.735 < 2). The result of the Durbin Watson (D-W) statistic measure was 1.735 which is less than the threshold of 2. This shows that the dependent variables and the independent variables are positively auto correlated.
Hypothesis Test on Supplier Value Management and Operational Performance

This section of the research provides information about testing of the research hypotheses.

H₀₁: Supplier Value management does not significantly affect operational performance of manufacturing firms listed in the Nairobi securities exchange, Kenya.

Table 4.7: Model Summary Supplier Value Management

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.657*</td>
<td>.431</td>
<td>.437</td>
<td>5.03507</td>
</tr>
</tbody>
</table>

From the study findings in Table 4.7, the value of R-square is 0.431. This implies that, 43.1% of variation of operational performance of agro-processing firms listed in the Nairobi securities exchange, Kenya was explained by supplier value management.

Table 4.8: ANOVA Test Supplier Value Management

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>4320.7741</td>
<td>1</td>
<td>4320.741</td>
<td>170.431</td>
<td>.002*</td>
</tr>
<tr>
<td>Residual</td>
<td>5704.176</td>
<td>134</td>
<td>25.352</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10024.916</td>
<td>135</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: operational performance
b. Predictors: (Constant), supplier value management

From the findings in Table 4.8, at 0.05 level of significance the ANOVA test indicated that in this model the independent variable namely; supplier value management is important in predicting operational performance of agro-processing firms listed in the Nairobi securities exchange, Kenya as indicated by significance value=0.002 which is less than 0.05 level of significance (p=0.002 < 0.05).

Table 4.9: Coefficients of the Model Supplier Value Management

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>3.049</td>
<td>1.592</td>
<td>.657</td>
<td>1.915</td>
</tr>
<tr>
<td>Supplier value management</td>
<td>.693</td>
<td>.053</td>
<td>.657</td>
<td>13.055</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Operational performance
b. Predictors: (Constant), supplier value management, reverse markets, supplier training.

From Table 4.9, the study findings revealed that supplier value management had significant influence on operational performance of agro-processing firms listed in the Nairobi securities exchange, Kenya (t-statistic=13.055, p-value=0.002<0.05). Therefore, at 5% level of significance the null hypothesis was rejected, indicating that supplier value management had significant relationship with operational performance of agro-processing firms listed in the Nairobi securities exchange, Kenya. Thus, for every unit increase in supplier value management there was a corresponding increase on operational performance of agro-processing firms listed in the Nairobi securities exchange, Kenya by 0.693.

Multiple Linear Regression for all the Variables

Table 4.10: ANOVA Table

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>5626.804</td>
<td>3</td>
<td>1456.701</td>
<td>33.122</td>
<td>.021*</td>
</tr>
<tr>
<td>Residual</td>
<td>13721.669</td>
<td>132</td>
<td>43.980</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>19548.473</td>
<td>135</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), supplier value management, reverse markets, supplier training.
b. Dependent Variable: Operational performance
The ANOVA test is used to determine whether the model is important in predicting the supply chain performance. At 0.05 level of significance the ANOVA test indicated that in this model the independent variables namely supplier value management, reverse markets, and supplier training were predictors of operational performance of agro-processing firms listed in the Nairobi securities exchange, Kenya as indicated by significance value=0.021 which is less than 0.05 level of significance (p=0.021<0.05).

Table 4.11: Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>13.296</td>
<td>2.218</td>
<td>5.994</td>
<td>.002</td>
</tr>
<tr>
<td>Supplier value management</td>
<td>.211</td>
<td>.065</td>
<td>.229</td>
<td>3.229</td>
</tr>
<tr>
<td>Reverse markets</td>
<td>.338</td>
<td>.083</td>
<td>.071</td>
<td>.943</td>
</tr>
<tr>
<td>Supplier training</td>
<td>.012</td>
<td>.066</td>
<td>.377</td>
<td>5.008</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Operational performance

From the findings in Table 4.11 at 5% level of significance, supplier value management is a significant predictor of operational performance where (p=0.017 < 0.05). Reverse markets was a significant predictor of operational performance where (p=0.001 < 0.05). Supplier training was a significant predictor of supply chain performance where (p=0.048<0.05).

Letting $Y$ be operational performance, be supplier value management, $X_2$ be reverse markets, and $X_3$ supplier training, using the regression coefficients in Table 4.11, we have:

$$Y = 13.296 + 0.211^* X_1 + 0.338^* X_2 + 0.012^* X_3$$

From the equation above when supplier value management is increased by one-unit operational performance will increase by 0.211, a unit increase in reverse markets will result to 0.338 increase in operational performance, a unit increase supplier training results in 0.012 increase in operational performance.

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of the findings of the study in relation to the research objectives. It also draws conclusions, makes recommendations and suggestions for additional research.

Summary of the Findings

The study sought to find out the influence of supplier development on operational performance of manufacturing firms listed in Nairobi stock exchange. Specifically, the study was guided by the following objectives: to determine the influence of supplier value management on operational performance of manufacturing firms listed in Nairobi stock exchange, to determine the influence of reverse markets on operational performance of manufacturing firms listed in Nairobi stock exchange and to determine the influence of supplier training on operational performance of manufacturing firms listed in Nairobi stock exchange. From the study the following findings can be reported.

Objective 1: Supplier Value Management Influences on Operational Performance

The findings indicated that there are formal systems of supplier development provided for suppliers. Similarly, the findings indicated that, the study findings revealed that supplier value management had significant influence on operational performance of manufacturing firms listed in the Nairobi securities exchange, Kenya supplier value management is important in predicting of operational performance as indicated by indicated by significance value=0.002 which is less than 0.05 level of significance (p=0.002 < 0.05).

Conclusions of the study

Objective 1: Supplier Value Management Influences on Operational Performance

On the first objective, the study concludes that supplier value management development has a significant influence on operational performance. Correlation analysis conducted in this study showed a strong positive relationship between
supplier value management and operational performance. This results are consistent with those of (Groen, 2006) asserting that fostering supplier value management can have a significant operational performance.

Recommendations

Based upon the findings and conclusions of this study, the researcher recommends the following on supplier development. These practices include supplier value management, reverse markets and supplier training.

Objective 1: Supplier Value Management Influences on Operational Performance

The management should have suppliers value management. This will help ascertain the specific areas that suppliers value management Similarly the managers should put emphasis on suppliers development training and development practices to maintain the positive correlation seen between them and suppliers commitment to the Company.

Recommendations for future studies

Influence of Need Assessment on organizational performance.

The impact of supplier selection on operational performance.Similarly a cross-sectional analysis of supplier development on other firms in Kenya forms another area for further research.

REFERENCES


