



**INFLUENCE OF SUPPLIER RELATIONSHIP MANAGEMENT ON PERFORMANCE OF GRAIN MILLING FIRMS IN  
NAIROBI CITY COUNTY, KENYA**

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**ABSTRACT**

*The main purpose of the study was to explore the influence of supplier relationship management on performance of grain milling firms in Nairobi City County Kenya. Descriptive research design was employed and the targeted populations of the study were the 165 employees of the grain milling firms in Nairobi City County. The study showed that there was a positive relationship among variables. The study portrayed a strong positive relationship with Supplier Collaboration, Supplier Contracting, Supplier Relationship, Supplier Development. The study found that 71% of the effects in the performance of the Grain Miller firms in Nairobi County were explained in the model through the factors under consideration leaving 29% of the effects unexplained. This implied that there could be other factors/forms of supplier relationship management influencing the performance of Grain Miller firms in Nairobi other than the ones already investigated on. The study indicated that increasing Supplier Collaboration with a unit, holding other factors constant increase in performance of the Grain miller firms by 0.284. Similarly, a unit increase in Supplier Contracting holding other factors constant would lead to a decrease in performance of the Grain miller firms in Nairobi by -0.256. The study therefore recommended further studies on other forms of supplier relationship management apart from the ones already, that influence the performance of the Grain miller Firms in Nairobi. The firms top level management role in the Grain milling firms was also recommended to be researched on to find out how they influence the production performance of firms in Nairobi. The researcher also recommended a further researcher on the factors influencing the market sector as a result of the fluctuations encountered in profit, market share as well as in the sales of products in Nairobi Grain miller firms.*

**Key words:** *Supplier Contracting, Supplier Collaboration, Supplier Relationship, Supplier Development, Grain Milling Firms*

## INTRODUCTION

The globalization of economy, short life cycle of products, increased customer expectation and intensified competition on technological development has led to a rapid change in supply chain industries. According to Eyaa, Ntayi and Nagurney (2010) buyer-supplier relationship is the economic activities backbone in the modern world, performance, organizational competitive focal point and business long-term success. The profit generating capacity and individual competitiveness of a firm depends on its capability to handle the supply side thus positioning the relationship between the buyer and supplier management, as the value of shareholders and the key driver of customer (Kemunto & Ngugi 2014).

According to Jolayemi (2010), Supplier Relationship Management (SRM) is suppliers identifying strategic approach via some management and optimization methodologies with a cost improvement breakthrough application, increased shareholder value for all firm partner's, quality service and technology. Organization's supplier can be located on any part of the world in this globalization era. In cases of similar geographical divergence supplier can employ each other.

Burt, Petcavage and Pinkerton (2010) states that there has been decline in manufacturing industry performance in America making its total GDP contribution to be more much less than half how it was 20 years ago. That poor GDP contribution was caused by the poor manufacturing and Suppliers relationship leading to increased production cost with a corresponding fall in gross operating profit margin to profit gross operating margin; 10.5% in the 2012 to 3.6 % in 2013. Global economic weakening condition are forcing reinvent of organizational relation with suppliers and customer alike.

Bayode and Bamiduro (2014) Over the years, many companies in Nigeria both public and private have

liquidated, inclusive of major marketers of petroleum products (NNPC retail outlets) because of their inability to maintain perfect relationship with suppliers, inefficient and poor management structure, inability to forecast and identify demand level of potential buyers in a target market. Similarly, inability to maintain perfect relationship with supplier's supplier, Consumers, perfect accessibility of the products have been the major obstacle confronting the suppliers of petroleum products in Nigeria.

Supplier relationship management in Kenya gained attention in the year 2000, regardless in importance of having good supplier surveys reports that many organizations in Kenya are still strangling with the supplier-buyer management. Manufacturing private firms in Kenya have tried to work together with their respective suppliers to ensure that they have worthy management relationship with the preservation of supplier's main objectives, meeting future expectations, relationship loyalty, customer satisfaction and intentions (Union Consulting Ltd, 2009)

The history of the milling in Kenya dates back to early 1920 with the innovation of the hammer mill. The milling sector has ever since continuously grown with the new technology due to the need of hulling mechanism on grains such as wheat, a process that the hammer mill could not achieve. The number of the commercial cereal milling firms has grown over the decades. Kenya now has 30 medium to large scale milling firms (90-610 metric tons per 24hrs) and 75 small scale millers with estimated pool capacity of 83 metric per day (United States Agency for International Development [USAID], 2010).

Constitution of Kenya (2010) Nairobi City County is number 47 and capital city of the Republic of Kenya. County Integrated Development Plan, [CIDP] (2017) Nairobi borders Kiambu County to the North and West, Kajiado to the South and Machakos to the East.

Among the three neighbouring counties, Kiambu County shares the longest boundary with Nairobi County. Nairobi's history goes back to 1899 when it became the site of the Uganda Railway's headquarters. Prior to this, the city was uninhabited and was primarily swampland. Under the rule of the British, the city grew and named as capital of the British protectorate and a municipality in 1919 (CIDP, 2017)

The city continued to expand through the 1950s and 1960s. Following World War II, Kenya became independent and Nairobi was named as capital city. In the early 1970s, the city continued its expansion and 2000s, the city became even larger and more modern, including the development of the Thika Superhighway. Today, the city is home to one of Africa's largest stock exchanges, is the site of international company headquarters including IBM, GE and Coca-Cola, and is known for Nairobi National Park, a popular destination for residents and tourists alike (CIDP, 2017)

### **Statement of the Problem**

Diego (2011) East African Breweries Limited (EABL) strong relationship with supplier has led to a successful implementation of effective supplier management mechanism. This makes the operations supplier essentials sustainable, fair contract and mutual benefit on every business they conduct together. According to Euro monitor (2017), the grain milling sector has been affected due to poor supplier management in terms of shortage of supplies and pricing of the commodities due to external tariffs and over dependency of import not only increases the cost of living but also widens trade imbalances and deficit.

Maize is the major raw material used by millers and insufficient rains during the short rains reduced its production declined from 42.5 million bags in 2015 to 37.8 million bags in 2016 and to 35.4 million bags in 2017. The price index for cereals increased from

213.4 in 2016 to 255.6 in 2017, (KNBS 2017). Government subsidy programme due to maize supply alone necessitated Unga limited miller to cease production of hostess product for a period of seven months from May to November 2017 leading to profit decline by 26% (Unga Ltd report, 2017). According to Sancha, Longoni and Giméne, (2015) in there study on sustainable supplier development practices, they established that many suppliers lack a strong and sustainable developments. Gichuru, Iravo and Arani, (2015) conducted a study on collaborative supply chain practices on performance of food and beverages companies. They established that in 2013 more than 30% of the suppliers failed to establish a collaborative supply chain relationship in their food and beverages companies. The effort to achieve generalization of the causal relationship between supplier relationship management and performance of grain milling firms called for empirical confirmation in diverse environments, especially developing economies such as Kenya. This study therefore sought to empirically examine how supplier collaboration, supplier contracting, Supplier relationship and supplier development influence performance of grain milling firms in Nairobi City County, Kenya.

### **Objectives of the Study**

The study aimed to explore the influence of supplier relationship management on performance of Grain Milling firms in Nairobi County, Kenya. The specific objectives were:-

- To find out the influence of supplier collaboration on performance of Grain Milling firms in Nairobi City County, Kenya
- To examine the influence of supplier contracting on performance of Grain Milling firms in Nairobi City County, Kenya
- To investigate the influence of Supplier relationship on performance of Grain Milling firms in Nairobi City County, Kenya

- To explore the influence of supplier development on performance of Grain Milling firms in Nairobi City County, Kenya

## LITERATURE REVIEW

### Theoretical Review

#### Social Capital Theory

Social Capital in sociology is the benefit of the economy taken from the collaboration and treatment preferential between individuals and groups. Different social sciences bring out different social capital aspects and the core idea of the value, the same way in which university education (cultural capital or human capital) or screwdriver (physical capital) intensifies its productivity and so can productivity of a group or individual be affected by social contact (Putnam & Robert, 2000). Hence this theory states that collaboration in this study the supplier-buyer collaboration may led to an added value. Therefore, collaborative buyer-supplier relationship is supported by the theory for it leads to a mutual benefit.

#### Network Governance theory

The terms "network organization" (Miles & Snow, 1986), "networks forms of organization" (Powell, 1990), "interfirm networks", "organization networks" (Uzzi, 1996a, 1996b), "flexible specialization" (Piore & Sable, 1984), and "quasi-firms" (Eccles, 1981) have been used frequently and somewhat metaphorically to refer to interfirm coordination that is characterized by organic or informal social systems, in contrast to bureaucratic structures within firms and formal contractual relationships between them (Gerlach & Nohria, 1992). Network governance constitutes a "distinct form of coordinating economic activity" which contrasts (and competes) with markets and hierarchies (Powell, 1990). Network governance involves a select, persistent and structured set of autonomous firms (as well as non-profit agencies) engaged in creating products or services based on implicit and open-ended contracts to adapt to

environmental contingencies and to coordinate and safeguard exchanges (Jones, Hesterly & Borgatti 1997). Environmental uncertainty (also called state uncertainty) refers to an inability to predict future events (Milliken, 1987). The source of this uncertainty can come from suppliers, customers, competitors, regulatory agencies, unions, or financial markets (Miles & Snow, 1978).

#### Resource Dependence Theory

Pfeffer and Salancik (1978) promoted Resource Dependence Theory (RDT), this was a study of effects of organisational external resources on performance in firms. The external resource procurement is imperative to tactical and strategy management of most companies. Nevertheless, consequential theory of prominence was not formularized until 1970s, with the external control publication of the organisation. This theory has implications in the effectiveness of procurement of buying firms mostly by getting confined in a relationship with suppliers as their loyal and vital partner. Thus, this theory support the concept of supplier development.

Resource Dependence Theory suggests that the need to have good relationship can be brought about by lacking on one resource which will make you want to relate with the other so as to get what you don't have in the same way sellers depend on buyers for precious markets and buyer depend on suppliers for external resources.

#### Systems Theory

Systems theory describes the interrelatedness of all parts of an organization and how one change in one area can affect multiple other parts (Li & Geiser, 2009). According to Walker and Brammer, (2009) organization act as systems interacting with their environment. Any equilibrium is constantly changing as the organization adapts to its changing environment. The foundation of systems theory is that all the components of an organization are interrelated, and that changing one variable might impact many others (Maignan *et al.*, 2012).

Organizations are viewed as open systems, continually interacting with their environment. They are in a state of dynamic equilibrium as they adapt to environmental changes.

Lozano and Valles (2013) states that this theory sees the structure of organisation as an patterns established relationships in all organisational parts, the relationships and duties are of great importance. This includes differentiation themes (the way tasks are divided), integration (the way activities are coordinated), relationships structure of the hierarchical (authority systems), and the dignified policies, procedures and controls that guide the organization (administrative systems) Maignan *et al.*, (2012).

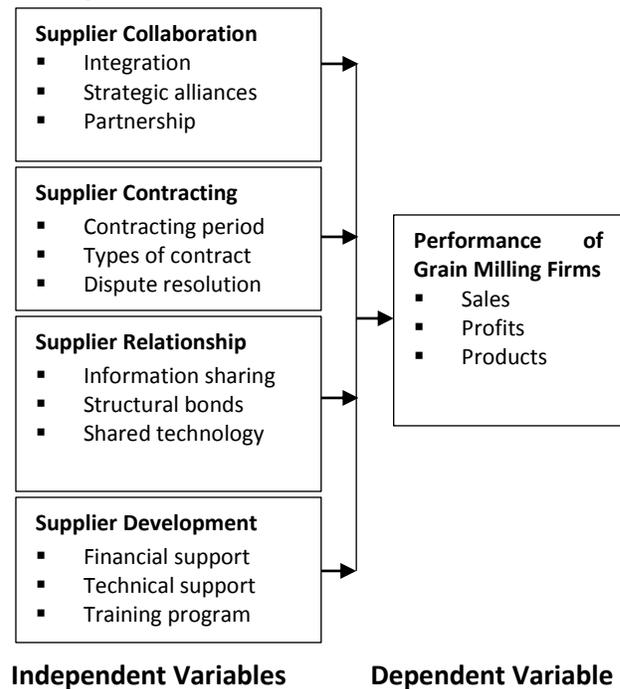
**Organizational Theory**

An organization is defined to be an assembly of individuals who work together with the aim of achieving a common goal through division of labor. By means of using individual strength such as proficiency suppliers within a group .An organization achieves more by individual working group members’ effort. This theory supports the supplier collaboration relationship with buyers so as to achieve satisfaction of customers e.g. improved quality and reduces cost.

Business organization are formed to deliver services and goods to consumer in a way that they are able to realize the profits after transactions. As Jeffrey (2000) summarized in New Directions for Organization Theory, organizational theory studies provide an interdisciplinary focus on the effect of social organizations on the behavior and attitudes of individuals within them, the effects of individual characteristics and action on organization, the performance, success, and survival of organizations, the mutual effects of environments, including resource and task, political, and cultural environments on organizations. Different organizations adopt different strategies such as supplier integration in reaction to changes in its

competitive circumstances, structural design, and experiences.

**Conceptual framework**



**Figure 1: Conceptual Framework**

Source: Author (2018)

**Supplier Collaboration**

The strategic focused outcomes model (SFOM) puts collaboration in three categories. This are collaboration of markets which involves activities such as merchandising, joint selling distribution channel management and co-branding. Operations’ collaboration which involves link order management system, sharing and developing of forecasts, sharing operational planning information, joint capacity management system. Collaboration of strategies includes develop joint capital expenditures, developing joint market entry strategies, and sharing basic technologies and shared production engineering and aligning customer requirements (Tan Leong, 2009).

### **Supplier Contracting**

According to report produced by EU (2008) in their survey on supplier contracting in enhances a competitive supplier sourcing process carried out in an open, objective and transparent manner can achieve best value for money in an organization. Essential principles that should be observed in conducting the contracts include supplier financial capacity, capability and readiness to embrace new technology among other factors. In addition to the above indicators, the findings of study conducted by Mwikali & Kavale (2012) revealed that cost factors, technical capability, quality assessment, organizational profile, service levels and risk factors, in that order of relative importance, are key factors affecting supplier contracting in procurement management. According Pamela (2013) supplier contracting enhances procurement performance indicating a need for strategic alliances for improved performance of the parties.

### **Supplier Relationship**

It is a without a doubt that the successful development of SCM performance has to focus on customers' needs and wants (Chandra & Kumar, 2000; Svensson, 2013). Consequently, the performance of the supply chains can affect customer satisfaction. That's why the best combination of the constituent has to be found, in order to ensure that the core objective of satisfying customer requirements at the lowest possible cost at the highest service level is achieved. No single component can be seen disjointedly from the other but they have to be viewed through both the effects of the channel system and the critical effect. Collaboration, in the context of the supply chain (Barratt, 2004), is to share the joint objections; an intelligence of commitment; trust and respect; skills and knowledge; and intellectual agility. Supplier/manufacturer collaboration provides benefits to the chain members. That is why

collaboration has become one of the most talked about topics in business area (Min et al., 2005). Especially in today's complex competition business environment, collaboration is the driving force behind effective supply chain management.

### **Supplier Development**

The supplier development contributions to the firms are in terms of creation and maintenance of technicality, suitable reliable suppliers, cost capability quality, quality and delivery with continuous improvement" Rajput and Bakar (2012). It is a consensual effort by both the buying and supplying organization to improve the supplier's performance /capabilities jointly in one or more of the following areas: delivery, cost, environmental responsibility, and quality, time to market, managerial capability and financial viability (Krause & Handfield, 2011).

### **Grain milling firms Performance**

Performance of a firm refers to how well an organization attains its market criteria as well as financial goals (Li et al., 2005). In general, both financial and non-financial criteria can measure the procurement performance (Demirbag et al., 2006). The measures of financial goals include, sales growth, return on investment profit, business performance and organization effectiveness (Venkatraman & Ramanujam, 2016). Centrally, the measures of non-financial criteria are market share and innovation performance (Demirbag et al., 2006).

### **Empirical review**

#### **Supplier Collaboration**

Njagi and Shalle (2016) conducted a study on the Role of Supplier Relationship Management on Procurement Performance in Manufacturing Sector in Kenya, a case of East African Breweries Ltd. A focus of the study was on employees working in different departments at the Company. Descriptive research design was adopted which was appropriate because it involved collecting data in order to answer pertinent questions concerning the current status of subjects

under study. The A population was 450 employees working in different departments targeted who were directly involved in managing manufacturing activities in the Organization. The sampling frame was the Human Resource register at EABL. The sample size of 80 respondents was selected using stratified sampling technique. Data collected was analyzed using SPSS version 23. Analysis of variance (ANOVA), correlation and regression analysis was done.

### **Supplier Contracting**

A study by Mirawati *et al* (2015) on Supplier-Contractor Partnering Impact on Construction Performance: a case of Malaysian Construction Industry, they state that for effective contracting a long-term commitment between two or more organizations for the purposes of achieving specific business objectives by maximizing the effectiveness of each participant resources. This requires changing traditional relationships to a shared culture without regard to organizational boundaries. The relationship is based on trust, dedication to common goals, and an understanding of each other's individual expectations and values.

Weston and Gibson (2012), in their study on Partnering-Project Performance in U.S. Army Corps of Engineers, *Journal of Management Engineering*, revealed that team work and partnering project performs above average than those projects managed in an adversarial manner. Furthermore, partnering in projects improves in risk management activities both upstream and downstream relationships which in turn improve customer satisfaction. The Main Client contractor relationship is upstream while main contractor-subcontractor relationships are downstream.

### **Supplier Relationship**

Mbaisi and Chirchir (2016) conducted a study on the Factors affecting supply chain integration in large manufacturing firms in Kenya. The study objectives was to determine the extent of supply chain

integration in large manufacturing firms in Kenya, to establish the factors affecting supply chain integration on large manufacturing firms in Kenya, and to determine the effect of the identified factors on the implementation of supply chain integration on large manufacturing firms in Kenya. The study was based on cooperative game theory and systems theory.

### **Supplier Development**

Humphreys (2003) did a study on the impact of supplier development on buyer-supplier performance and found out that there is evidence of that and influential factors related to buyer – supplier performance within the context of Hong Kong's electronics industry identified. The finding was in consistent with previous studies which indicated that supplier development efforts did improve buyer-supplier performance. He also says that companies should have to strong collaborative relationships with suppliers and put significant synergies into developing competent supply networks.

### **Milling Firms Performance**

Inayatullah, Narain and Singh, (2012) Operational performance is thus a non-financial indicator of performance which in a manufacturing set up is an organizations execution measured against recommended pointers of natural obligation, proficiency and adequacy, for example, process duration, efficiency, squander lessening and administrative consistence. According to PR Newswire (2016) The Kenyan flour market will show strong growth (CAGR of 7.3%) over the next 5 years due to improving retail accessibility, and increasing market sophistication drive demand. Worth \$738.1 million in 2015, the Kenyan wheat flour market is expected to increase from \$738.1 million in 2015 to \$1.15 billion by 2020 at a CAGR of 9.2%, accounting for 47.2% of the market by 2020. In comparison, the commercial maize flour market is expected to

increase from \$315.8 million in 2015 to \$444.0 million by 2020 at a CAGR of 7.1%, while posho maize flour will increase from \$658.2 million in 2015 to \$840.2 million by 2020 at a CAGR of 5.0%.

## METHODOLOGY

Descriptive research design was used in the study. According to Kothari (2004), descriptive research design is concerned with describing, recording, analyzing and reporting conditions that existed or were to exist. The population of the study formed a very vital part of this research. The target population was 165 employees drawn from the sampled grain milling firms in Nairobi County who were also registered members of the Cereal Millers Association (CMA). The sampling frame of this study included the store managers, managers, finance managers and procurement officers, gotten from the grain milling firms who were legally registered members of Cereal Millers Association (2017). A questionnaire was used in the study as it enabled researcher to collect first-hand information over a short period of time. Both quantitative and qualitative data was collected. Once the questionnaires were received, the responses were coded and edited for wholeness and uniformity. Qualitative data was analysed using content analysis while quantitative data was analyzed by employing both descriptive statistics and inferential analysis using statistical package for social science (SPSS). The equation was expressed as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon, \text{ Where;}$$

Y = the response variable for the Performance of Grain Milling Firms;

$\beta_0$  = constant (coefficient of intercept); determines the output in Y when all other variables are excluded from the model

$X_1$  = the predictor variable for Supplier Collaboration;

$X_2$  = the predictor variable for Supplier Contracting;

$X_3$  = the predictor variable for Supplier Relationship

$X_4$  = the predictor variable for Supplier Development;  
 $\epsilon$  = Error term; the margin of error that is  $\sim N(0, \delta^2)$   
 $\beta_1 \dots \beta_4$  = regression coefficient the four study variables.

## RESULTS

### Supplier Collaboration

The study was to examine the influence of supplier collaboration on the performance of Grain Milling firms in Nairobi. The study therefore proved that a large number of the respondents established that firms had integrated with workers to offer a competitive reduction in cost in the organization with a mean of 3.9692. Strategic associations freed up cash as a result allowing investments on fundamental activities and improved organization costs reduction with a mean of 3.1385. On the performance of the grain milling firms in Nairobi, the firms' partnership and suppliers unbounded management time as well as reduced staff costs also giving organization flexibility with a mean of 3.4923. Supplier integration provided a better-quality quality by utilizing a worker who was knowledgeable, experienced and proficiency with a mean of 4.0000. Lastly, the strategic associations/alliances helped the management and also instilled sureness in them to take up more risk in essential areas which had more value addition with a mean of 3.44615. Two-way inter-organizational communication for successful supplier relationship was needed. In order to design issues and find solutions to material problems jointly, buyers and suppliers must pledge a greater amount of information as well as be prepared to share sensitive design information (Chen & Paulraj, 2003). With recent communications and information technology advances, firms have an opportunity for significant savings in logistics costs by organizing the planning of the various SCM stages. Cross-functional teams have been recognized as significant contributors to the success of such efforts as product design and supplier selection.

**Table 1: supplier collaboration and Performance of Grain Milling Firms**

	Mean	Std. Deviation
The firm has integrated with the workers who are always ready to offer a cost that is competitive hence reduction in cost in the organization	3.9692	1.28158
Strategic associations frees up cash thus allowing investments on fundamental activities and improves organization costs reduction	3.1385	1.61751
The firm partnership with the suppliers frees management time and reduces staff costs as well as giving organization flexibility	3.4923	1.31919
The supplier integration provides a better quality by utilizing a worker who is knowledgeable, experienced and with expertise skills	4.0000	1.20077
The strategic alliances/associations helps management and instill confidence in them to take up more risk in essential areas which have more value addition	3.44615	1.436304
Valid N (listwise)		

**Supplier Contracting**

The study was to measure the influence of supplier contracting on performance of Grain Milling firms in Nairobi firms' case study. The researcher concluded that indeed the firm had the flexible contracting period for reduction of costs in the performance of the organization with a mean of 4.0308, the firm had friendly contracts types to enhance fulfilment of the order as towards the organizational performance with a mean of 3.1846. The firm had a mechanism for dispute resolution so as to enhance fulfilment of order and costs reduction for the enhanced organizational performance with a mean of 3.5308. Similarly, the firm had a provision on conflicting/vague requirements to enhance quality of goods procured in the organization with a mean of 3.9846. Contracting period review systems were used by the firm in the procurement process to enhance quality of goods procured with a mean of

3.4538. Also, on supplier contracting, the firm had a mechanism for dispute resolution towards endless improvement programs to enhance fulfilment of order with a mean of 3.7462.

Dispute resolution in case of consequences reflects that purchasers have many options when conscripting disagreement resolution clauses in their deals. Some appear very similar but not all are appropriate for every project. Either is most suitable, buyers make sure contracts set out a dispute intensification process and specify the method. If the contract is silent on this point each party will give the other's proposals with disbelief, assuming that there is a plan or advantage behind a recommendation to, for example, adjudicate, arbitrate, litigate or mediate. There would also be the chance for the party accepting the claim to arcade the process by disagreeing (Gyau & Spiller (2010).

**Table 2: Supplier contracting and performance of Grain Milling firms**

	Mean	Std. Deviation
The firm has the flexible contracting period for costs reduction in the organization	4.0308	1.28158
The firm has a friendly contract types to enhance fulfilment of order	3.1846	1.55411
The firm has a mechanism for dispute resolution to enhance fulfilment of order and cost reduction	3.5308	1.34792
The firm has a provision on a conflicting/vague requirements to enhance quality of goods procured	3.9846	1.22623

The firm uses systems of contracting period review in the procurement process to enhance quality of goods procured	3.4538	1.46859
The firm has a mechanism for dispute resolution for a continuous improvement program to enhance fulfilment of order	3.7462	1.41592
Valid N (listwise)		

### Supplier Relationship

The specific objective of the study was to examine the influence of Supplier relationship on performance of Grain Milling firms in Nairobi firms' case study. The researcher established that the firm cooperated with the suppliers and manufacturers to deliver goods in time with a mean of 4.0615. The firm also had strong structural bonds with their suppliers for timely delivery of goods and reduction of cost with a mean of 3.2538. The firm had a shared technology with the suppliers for fulfilment of the order in general performance with a mean of 3.6538. The organization shared technology made sure that suppliers did not fail to honour issued orders with a mean of 4.0846 on the performance of the grain milling.

Cost reduction and fulfilment of order were also enhanced by the structural bonding with a mean of 3.5308 and finally the shared technology with the

suppliers promoted the firms' profitability with a mean of 3.7769. To make a co-operation work, all partners, accept some degree of obligation so as to make a co-operation work and therefore give some assurance degree with respect to their future conduct (Richardson, 2012). Structural bonds and Co-operation in business-to-business are viewed as vital mechanisms of supplier-customer-relationships seen as a network (Anderson, Hakansson & Johansen, 2014).

Bursk (2016), building relationships should be regarded as an investment and well-known relationships should be viewed as assets that have to be protected as well as safeguarded. In business-to-business relationships, structural bonds and gains from synergetic effects can be found commonly. Just-in-time production and lean production are good examples in which the partners hope to gain efficiency and/or effectiveness supplier development.

**Table 3: Supplier relationship and performance of Grain Milling firms**

	Mean	Std. Deviation
The firm collaborated with the suppliers and manufacturers to deliver goods in time	4.0615	1.31629
The firm has strong structural bonds with the suppliers for timely delivery of goods as well as reduction cost	3.2538	1.56171
The firm has a shared technology with the suppliers for fulfilment of order	3.6538	1.40161
The organization shared technology ensures that suppliers do not fail to honour issued orders	4.0846	1.23285
The structural bonding enhances reduction of cost and fulfilment of order	3.5308	1.57593
The shared technology with the suppliers promotes firms' profitability	3.7769	1.50073
Valid N (listwise)		

### Supplier Development

The specific objective of the study was to examine the influence of supplier development on performance of Grain Milling firms with Nairobi firms' case study. The researcher found out that the firm offered adequate financial support for costs reduction in the

organization with a mean of 3.9231, the firm also offered an adequate technical support to the suppliers to increase fulfilment of the order with a mean of 2.9615. The firm also seemed to check for a training program to boost the quality of goods procured with a mean of 3.4308 and used a list that is

approved to enable improvement in reduction of cost with a mean of 3.9846. The firm used supplier incentives to boost quality of goods procured with a mean of 3.3385 and finally offered supplier trainings for a continuous improvement program to boost the order's fulfilment with a mean of 3.66154.

Rajput and Bakar (2012) supplier development contributes to the companies in terms of creation and maintenance of technicality, suitable suppliers, cost capability quality, quality and delivery with continuous improvement.

**Table 4: Supplier Development and performance of the Grain Millers**

	Mean	Std. Deviation
The firm offers adequate financial support for costs reduction in the organization	3.9231	1.29767
The firm offer an adequate technical support to the suppliers to increase fulfilment of the order	2.9615	1.54219
The firm check for a training program to enhance quality of goods procured	3.4308	1.32325
The firm uses an approved list that can enable improvement in reduction of cost	3.9846	1.19420
The firm uses a supplier incentives to enhance quality of goods procured	3.3385	1.48143
The firm offers supplier trainings for a continuous improvement program to enhance fulfilment of the order	3.66154	1.433561
Valid N (listwise)		

**Performance of Grain Milling Firms**

The study general/main objective was to establish the influence of supplier relationship management on performance of Grain Milling firms with Nairobi firms' case study.

The study indicated as follows: those with sales of 499,000 and below in 2013 were 11%, 2014 were 13% 2015 was 18%, 2016 was 27% 2017 was 32%. Those between sales between 500,000-999,000 in 2013 was 7%, 2014 was 9%, 2015 was 3% 2016 was 21% and 2017 was 22%. Those with 1,000,000 and above in 2013 was 3%, 2014 was 3%, 2015 was 1%, 2016 was 5% and in 2017 15%. The study established that those firms with sales of 499,000 and below were more compared to those with 1,000, 000 and above and those with sales between 500,000-999,000. The study also indicted as follows: that those with profit of 499,000 and below in 2013 was 9%, 2014 was 8%, 2015 was 21%, 2016 was 24%, 2017 was 27%. Those between sales between 500,000-999,000 in 2013 was 12%, 2014 was 12%, 2015 was 2% 2016 was 25%, and 2017 was 24%. Those with 1,000,000 and above in 2013 was 6%, 2014 was 7%, 2015 was 11%, 2016 was

7% and 2017 was 21%. The study established that those with profit of 499,000 and below were more that those with 1,000,000 and above. The study proved that Products coverage in 2013 was 11%, 2014 was 15%, 2015 was 18% 2016 was 23%, and 2017 was 24%. The product numbers in 2013 was 5%, 2014 was 9% 2015 was 11%, 2016 was 7%, and 2017 was 21%. The study established that in 2013, 2014, and 2015 the market penetration was low and product numbers was less variety.

**Inferential Analysis**

**Correlations Analysis**

The study results showed that there was a positive relationship amongst variables at 5% significant level in the study. The study also portrayed a strong positive relationship in the study variables as follows: Supplier collaboration and the performance of the grain millers firms were positively and strongly correlated with a Pearson correlation of value of .730\*\*, Supplier Contracting and the performance of the grain millers firms were positively and strongly correlated with a Pearson correlation of value of .682\*\*, Supplier Relationship and the performance of

the grain millers firms were positively and strongly correlated with a Pearson correlation of value of .746\*\* and finally Supplier Development and the performance of the grain millers firms were positively and strongly correlated with a Pearson correlation of

value of .606\*\*. The trending in the correlation exhibited that the factors examined in the study formed the immediate cause of influences to the performance of the grain miller firms in Nairobi.

**Table 5: Correlations**

		Performan ce	Supplier Collaboration	Supplier Contracting	Supplier Relationship	Supplier Development
Performance	Pearson Correlatio n Sig. (2- tailed) N	1 130				
Supplier Collaboration	Pearson Correlatio n Sig. (2- tailed) N	.730** .000 130	1 130			
Supplier Contracting	Pearson Correlatio n Sig. (2- tailed) N	.682** .000 130	.842** .000 130	1 130		
Supplier Relationship	Pearson Correlatio n Sig. (2- tailed) N	.746** .000 130	.803** .000 130	.923** .000 130	1 130	
Supplier Development	Pearson Correlatio n Sig. (2- tailed) N	.606** .000 130	.423** .000 130	.367** .000 130	.379** .000 130	1 130

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

**Regression Model Summary**

The study results showed that 71.3% of the effects in the performance of the Grain Miller firms in Nairobi County was explained in the model through the

factors under consideration: Supplier development, supplier relationship, Supplier collaboration and Supplier contracting, leaving 29% of the effects unexplained. This implied that there could be other

factors influencing the performance of Grain Miller firms in Nairobi other than the ones already investigated on. The R square (adjusted) was slightly lower than R square. This implied cases of possible model over fitting. An additional extra variable would

possibly make the adjusted R square to become lower and lower. Only meaningful variables should be include in the model for accuracy as higher value of R square indicates a better model fit.

**Table 6: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.844 <sup>a</sup>	.713	.704	.59106

a. Predictors: (Constant), Supplier Development, Supplier Contracting, Supplier Collaboration, Supplier Relationship

**Analysis of Variance (ANOVA)**

Ronald Fisher Anova (2002) in his study on Fisher stated that Analysis of variance (ANOVA) is a statistical models' collection used in analyzing differences among group means and their related procedures i.e variation among and between groups. From the analysis ANOVA below, the F-Statistics had a value 77.546 with a corresponding P-value =.000<sup>b</sup>.

The tabulated value from F- statistics table;  $F_{5\%}(4,125) = 2.3719 < F_c = 77.546$  hence the null hypothesis was rejected and concluded that the model fitted was significant at 5% level of significance. Similarly, the obtained P-value was compared with the default P-value=0.05. But since  $0.000^b < 0.05$ , then the study concluded that the model fitted was significant at 5% significant level.

**Table 7: ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	108.362	4	27.091	77.546	.000 <sup>b</sup>
	Residual	43.669	125	.349		
	Total	152.031	129			

a. Dependent Variable: Performance

b. Predictors: (Constant), Supplier Development, Supplier Contracting, Supplier Collaboration, Supplier Relationship

**Multiple Regression Coefficient**

The prior step was to test on whether the fitted/regressed model was significant to the study or not. From ANOVA<sup>a</sup> the result was that the regressed model was significant, the study narrowed down to test on the individual variables' significance in the model to the model on how they contributed to the performance of the miller firms in Nairobi County.

value=0.000<0.05 hence the variable was significant to the study and lastly Supplier Development with a P-value=0.000<0.05 had a significance to our study that indeed Supplier Development influence the performance of the Grain miller form in Nairobi at 5% significance level.

The research summarized as follows: Supplier Collaboration had a P-value=0.000<0.05, which indicated the significance of the variable in study model. Supplier Contracting had a P-value=0.024<0.05 which portrayed a 5% significance level in the performance of the grain miller firms in Nairobi. Supplier Relationship had a P-

The regression model fitted to the study was:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon, \text{ Where;}$$

Y= the response variable for the Performance of Grain Milling Firms;

$\beta_0$ = constant (coefficient of intercept); determines the output in Y when all other variables are excluded from the model

$X_1$ = the predictor variable for Supplier Collaboration;

$X_2$ = the predictor variable for Supplier Contracting;

X<sub>3</sub>= the predictor variable for Supplier Relationship  
 X<sub>4</sub>= the predictor variable for Supplier Development;

ε = Error term; the margin of error that is  $\sqrt{N(0, \delta^2)}$   
 β<sub>1</sub>...β<sub>4</sub>= regression coefficient the four study variables

**Table 8: Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	.884	.192		4.611	.000
	Supplier Collaboration	.284	.075	.348	3.791	.000
	Supplier Contracting	-.256	.112	-.317	-2.287	.024
	Supplier Relationship	.569	.113	.632	5.035	.000
	Supplier Development	.256	.041	.336	6.244<1	.000

a. Dependent Variable: Performance

The study therefore established that the regression model with the fitted coefficients was;

$$Y = 0.884 + 0.284X_1 - 0.256X_2 + 0.569X_3 + 0.256X_4$$

From the regressed model, the researcher found out that any increase in unit of Supplier Collaboration while holding other factors constant, would cause a significant increase in the performance of the Grain miller firm with the Nairobi firms' case study by 0.284. Similarly, a unit increase in Supplier Contracting holding other factors constant would lead to a significant decrease in performance of the Grain miller firms in Nairobi by -0.256. A unit increase in Supplier Relationship holding other factors constant would lead to a significant increase in the performance of the Grain Millers firms by 0.569 and finally any unit increase in Supplier Development holding other factors constant would lead to a significant increase in the performance of the Grain Millers firms by 0.256. Additionally, if all the factors in question were to be omitted from the model, still the firm could incur an increase in performance. That is; when  $\beta_1 \dots \beta_4 = 0$ , i.e when all the β's are set to 0. In such a case the yielded performance would occur with a constant value of 0.884.

## CONCLUSIONS

R square's value indicated that most of the study effects on the Grain Miller firms' performance in

Nairobi County, were explained in the model through the factors under consideration: Supplier Collaboration, Supplier Contracting, Supplier Development, and Supplier Relationship leaving a few of the effects unexplained. This implied that there were other supplier relationship management factors that influenced the performance of Grain Miller firms in Nairobi other than the ones already investigated on. From the model, the research concluded that Supplier Contracting, the only factors from those studied, holding other factors constant, lead to a significant decrease in performance of the Grain miller firms in Nairobi. However, Supplier Development, Supplier Collaboration, Supplier Relationship positively influenced Grain Miller firms' performance in Nairobi County.

## RECOMMENDATIONS

A unit increase in Supplier Collaboration while holding other factors constant, would cause a significant increase in the performance of the Grain miller firm. The study therefore recommended Grain milling firms to consider focussing more on supplier collaboration for the better performance.

A unit increase in Supplier Contracting holding other factors constant would lead to a significant decrease in performance of the Grain miller firms in Nairobi. The study therefore recommended firms to reconsider contracting suppliers so as to better their

firm performances since increasing the no of contracted suppliers would definitely lower the performance by a similar margin of increase. Dispute resolution mechanism should therefore be observed by the firm so as to enhance fulfilment of the placed order and cost reduction so as to enhance performance in their production.

A unit increase in Supplier Relationship holding other factors constant would lead to a significant increase in the performance of the Grain Millers firms. The study therefore recommended the stakeholders to the Grain miller firms to observe on how they associate with their supplier, since a good relationship will definitely work towards their better performance.

However, when all the factors in question were to be omitted from the model, still the firm could incur an increase in performance, thus in case whereby the

firms fail to observe the stated supplier relation management factors, then they should be able to maintain their performance at a constant unit increase.

#### **Areas for further Research**

Further research should be conducted in other forms of industries in Nairobi apart from the millers industry to examine if the same case applies to all industries in Nairobi. From the R Square, the research found out that only 79% of the effects in the model had been explained, leaving 29% unexplained. Further studies were therefore recommended on other supplier relationship management factors apart from the ones already, that influence the performance of the Grain miller Firms. Also, the Grain miller firms' management should be researched on to examine their influence on the firms' productivity in Nairobi County.

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