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# Influence of Supplier Capacity on the Performance of State Corporations in Kenya

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## Abstract

The purpose of this study was to determine the influence of supplier capacity on the performance of state corporations in Kenya. The study adopted cross-sectional survey design using both quantitative and qualitative approaches. The target population included 187 state corporations in Kenya. The study applied a census approach. Primary data was collected using questionnaires. Descriptive statistics were used to compute percentages of respondents' answers. Inferential statistics using linear regression and correlation analysis were applied to establish the relationship between the research variables. The results indicated there was a positive and significant relationship between supplier capacity and performance of state corporations in Kenya. The study concluded that supplier capacity had a significant and positive influence on the performance of state corporations in Kenya. Based on the findings, the study recommended the need for suppliers to enhance their capacity to meet the expectations of their customers. Some of the criterion that firms can use to assess their suppliers is technological level, which involves general assessment of the supplier's capability in terms of innovation and technology. Further, the study recommended that state corporations' managers should ensure that all their suppliers adopt modern technology and this will help them improve their capacity performance.

**Keywords:** *Supplier capacity, performance, state corporations*

## 1.0 INTRODUCTION

An efficient supplier evaluation process is very important to any organization's success in today's highly competitive climate. For the procurement manager, finding the best supplier is often a challenging job. Suppliers have different strengths and weaknesses that can be offered to them, requiring careful assessment by the buyers before rating. Therefore each decision must be combined at each point of the supply chain through trading-off performances of various suppliers (Liu & Hai, 2010). In a supply chain, the most critical link in the distribution channel is collaboration between the company and the supplier. The global competitive landscape makes companies heavily dependent on the success of the procurement process for suppliers. In this process, lack of coordination or error may lead to excessive delay or poor customer service. In this sense, as it directly affects the cost reduction, profitability and flexibility of a business, the purchasing department's decisions have a significant impact on the effectiveness and effectiveness of the business (Chan & Kumar, 2014).

The most suitable selection of its partners and suppliers also depends on any organizational performance. In today's competitive climate, the position of procurement departments has changed significantly. In order to keep consumer commitments, in addition to improved

production methods and technology, an efficient material procurement system is required. Working with manufacturers to provide quality and distribution just in time by sourcing raw materials, parts and goods is a must (Barla, 2011). Supplier evaluation is one of the methods used by the organisation to find the right suppliers. Supplier evaluation is a quantitative and qualitative supplier assessment to ensure the availability of a portfolio of best-in-class suppliers for use (Mutai & Okello, 2016).

### 1.1 Statement of the Problem

Despite the trend toward privatization over the past 20 years, state corporations (SCs) are still significant economic players (WB, 2014). Globally, SCs account for 20 percent of investment, 5 percent of employment, and up to 40 percent of output in some countries (Robinett, 2006; GoK, 2015). In developing countries, SCs produced about 15 percent of regional GDP in Africa (Kikeri & Kolo, 2006). In Kenya $SC_S$ have become a strong entity and useful engines to promote development (Njiru, 2008). The General Economic Services Sector which is a major contributor to GDP and employment creation in the economy in the last three years (2003-2005) contributed 20%, 21% and 23% respectively to GDP (ROK, 2013).

The performance of SCs however, has been a matter of on-going concern in an environment of resource scarcity. In 2011/12, eleven (11) commercial SCs made losses; this represents 21%, of all commercial oriented Government Owned Entities (RPTPR, 2013). Parliament Report (2015) indicated that SCs in Kenya have lost money to tune of Ksh. 2 billion in the financial year of 2015-2016 through fraudulent payment of suppliers. Transparent International (2013) that state corporations in Kenya are facing serious challenges especially in procurement where millions of shillings have been paid to unscrupulous supplier.

Despite the reforms and initiatives to reinvent the SCs in Kenya, many of them still perform poorly (RPTPR, 2013). Unlike in the past, SCs today are under strong pressure to improve their performance (WB, 2014). Research has found that supplier evaluation could help organizations to remain viable and competitive. Studies have been undertaken on supplier selection and evaluation. Schiele (2007) established that extensive supplier audits significantly influence a firm's performance level. Timmons (2010), studied how important the selection and evaluation of suppliers is in the management of purchasing and established that purchasing management has a significant bearing on the performance of organizations. It is therefore very important for SCs in Kenya to adopt best practices such as supplier evaluation to enable the SCs sector realize full potential (RPTPR, 2013). Also Despite the compelling link between firm performance and supplier evaluation, few studies have addressed it. This study sought to investigate influence of supplier capacity on the performance of state corporations in Kenya.

### 1.2 Research Objective

The study objective was to determine the influence of supplier capacity on the performance of state corporations in Kenya.

### 1.3 Research Hypothesis

**$H_a$**: Supplier capacity has a positive significant influence on the performance of state corporations in Kenya.

## 2.0 LITERATURE REVIEW

### 2.1 Theoretical Review

#### 2.1.1 Multiple Attribute Utility Theory

Supplier selection is a complex decision-making problem. The complexity stems from a multitude of quantitative and qualitative factors influencing supplier choices as well as the intrinsic difficulty of making numerous trade-offs among these factors (Hokey, 1994).One analytical approach often suggested for solving such complex problems is Multiple Attribute Utility Theory (MAUT) (Green & Wind, 2003) for various successful applications of MAUT. Multiple attribute utility theory (MAUT) enables the decision maker to structure a complex problem in the form of a simple hierarchy and to subjectively evaluate a large number of quantitative and qualitative factors in the presence of risk and uncertainty. The major strength of MAUT is its ability to deal with both deterministic and stochastic decision environments (Zionts, 1992).

The application of MAUT to the complex problem usually involves the following steps as identified by Lagoudis, Lalwani and Naim (2006). Identify the objectives or goals of the decision and define the problem scope, define a finite set of relevant attributes affecting the decision outcome and structure them into a hierarchical form called a "value tree", elicit preference information concerning the attributes from the decision maker(s) and determine the relative importance of the attributes, develop the decision maker's utility function by establishing functional relationships between the attributes and the utility scores. If these relationships are uncertain, the expected utility score for each attribute will be determined by using the appropriate type of probability distributions. Compute the aggregate (overall) utility score for each decision alternative and rank alternatives in terms of aggregate utility scores. Perform sensitivity analyses. The systematic nature of MAUT in tackling complex problems under conflicting multiple criteria makes MAUT especially suitable for selecting the most appropriate supplier. Thus, state corporations can apply this theory in evaluating and rating suppliers in various attributes such as capacity, quality, competence, financial, capacity, human resource and environmental issues. This will enable state corporations to make informed decisions regarding supplier evaluation.

### 2.2 Empirical Review

The financial status of the supplier can be analysed by getting the information about the annual turnover of the Supplier and their financial structure based on the past history. The economic status of the supplier's country may affect the currency exchange rate, local price control and so Forth. This can result in higher hidden costs for international sourcing and into during the supplier selection. A good supplier should have a good financial base so that in case of delayed payments, supply is not hindered (Awino, 2002).

Continuous improvement and involvement by supplier in the early stage of a product life cycle can have important benefits for the purchasing company, but according to Weele (2005) it can be difficult in practice to apply and implement. The benefits can be e.g. improved product quality, reduction of product cost, reduction of development time and finally a reduction of development cost (Choy, 2003). Several authors have suggested a category that focuses on supplier's R&D competence and supplier's willingness to be involved in buyer's product development (Barla, 2013; Erdem & Göcen, 2012). Criterions such as continuous improvement programs, Future technology development and R&D facilities, are commonly selected and suggested to evaluate suppliers within these aspects (Sen et al., 2008; Muralidharan et al., 2002).

According to Weele (2005), capacity is one of the key factors for any company's success and therefore should supplier be evaluated based on that criterion. R&D capacity criterion can't be found within the literature review, at least not with the same name. However, Barla (2013) suggests a criterion that is called Technological level and according to the author, this criterion should be a general assessment of the supplier's capability in terms of innovation and technology. Muralidharan et al. (2002) suggested a criterion called R&D facilities that should be evaluated based on subjective judgment. So even though the proposed criterion can't be found within the literature it is fair to assume that R&D competence is secretly included in the authors' suggestions within the product development category.

According to Lysons et al., (2008) a buyer should also assess a supplier's capacity in terms of its production capacity which entails its machinery with attention paid to the following points: the availability of full range of machinery required to produce a required product, mechanisms to overcome shortage of machinery, evidence of good housekeeping, adoption of approaches such as computer aided designs, computer aided manufacture, satisfaction on safety provisions and modernity and well maintenance of machines. A buyer should focus on suppliers who have listed the name and location of the production facility, whose facilities have complied with ISO 9001 standards, are socially compliant. The supplier should have production experience documentation and the age of the equipment should be assessed (CIPS, 2012).

Evaluation of suppliers' capability to fulfill long-term increased demand is another criterion for evaluation. The intention of selection this criterion is to assess the supplier's capability to handle larger order volumes in the future (Vilhjálmur, 2013). The identification and selection of this criterion is supported by several sources. Dickson (1966) suggest a criterion called Production facility and capacity, Sen et al. (2008) offers criteria as process capability, process flexibility and future manufacturing capabilities. An evaluation of this criterion is an assessment of several aspects such as supplier's current production rate and supplier's customer base (Choy, 2003). Therefore it is clear that this criterion is qualitative abd should e based on the user's subjective judgment.

## 3.0 RESEARCH METHODOLOGY

The study adopted cross-sectional survey design using both quantitative and qualitative approaches. The study target population included 187 state corporations in Kenya. The study applied a census approach. Primary data was collected using questionnaires. Descriptive statistics were used in the study. Inferential statistics using linear regression and correlation analysis were applied to establish the relationship between the research variables.

## 4.0 RESULTS AND DISCUSSION

### 4.1 Descriptive Analysis

The study sought to know respondents' level of agreement on various statements relating to supplier capacity.

#### 4.1.1 Production Capacity

The descriptive results on production capacity are presented in Table 1.

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**Table 1: Production Capacity**

| Statements | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | Mean | Std. Dev |
|---|---|---|---|---|---|---|---|
| Supplier maximum productive capacity in normal working period high | 3.50% | 2.80% | 25.00% | 47.9% | 20.80% | 3.80 | 0.92 |
| Supplier maximum productive capacity in normal working period low | 10.40% | 20.80% | 32.60% | 29.9% | 6.20% | 3.01 | 1.09 |
| Supplier capacity is currently over committed | 16.70% | 13.90% | 32.60% | 27.1% | 9.70% | 2.99 | 1.22 |
| Supplier capacity is currently under committed | 17.40% | 10.40% | 36.80% | 29.9% | 5.60% | 2.96 | 1.15 |
| **Average** | | | | | | **3.27** | **1.07** |

Results from Table 1 revealed that majority of the respondents who were 68.7% (47.9%+20.8%) agreed with the statement that supplier maximum productive capacity in normal working period high, 25% were neutral while 6.3% disagreed with the statement. 36.1% agreed that supplier maximum productive capacity in normal working period low, 32.6% were neutral while 31.2% did not agree with the statement. Further, 36.8% agreed that supplier capacity is currently over committed, 32.6% were neutral to the statement while 30.6% disagreed with the statement. In addition, 36.8% of the respondents were neutral to the statement that supplier capacity is currently under committed, 35.5% agreed with it while 27.8% disagreed with the statement. Using a five-point scale likert mean, the overall mean of the responses was 3.27 which indicates that majority of the respondents agreed with the statement about profitability capacity. Additionally, the standard deviation of 1.07 indicates that the responses were varied. The results herein imply that suppliers have production capacity.

### 4.1.2 Capacity Planning Systems

The descriptive results on capacity planning systems are presented in Table 2.

**Table 2: Capacity Planning Systems**

| Statements | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | Mean | Std. Dev |
|---|---|---|---|---|---|---|---|
| Our suppliers are able to use systems for capacity planning e.g Material requirement planning (MRP), Material Resource Planning (MRPII), Electronic Data interchange (EDI) | 6.90% | 9.70% | 24.30% | 39.60% | 19.40% | 3.55 | 1.12 |

Results from Table 2 revealed the majority (59%) of the respondents agreed that suppliers are able to use systems for capacity planning, for example, Material requirement planning (MRP), Material Resource Planning (MRPII), Electronic Data interchange (EDI). 24.3% were neutral while 16.6% disagreed with the statement. The mean of the responses was 3.55 which indicates that majority of the respondents agreed with the statements about capacity planning systems. Additionally, the standard deviation of 1.12 indicates that the responses were varied. The results herein imply that suppliers have capacity planning systems. According to Semra (2003), Suppliers can improve capacity performance by adopting the modern technology and increasing total monthly capacity and by increasing the capacity using capacity planning systems goes a long way in improving organisations performance especially the performance of supply chain management. This agrees with this study in terms of if suppliers have capacity planning systems they will increase their total monthly capacity thus shorter lead-times thus improvement on performance of sate corporation.

### 4.1.3 On Time Deliveries

The descriptive results on time deliveries are presented in Table 3.

**Table 3: On Time Deliveries**

| Statements | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | Mean | Std. Dev |
|---|---|---|---|---|---|---|---|
| Suppliers have an appropriate fleet management to ensure goods and services are delivered on time? | 0.00% | 16.00% | 10.40% | 47.20% | 26.40% | 3.84 | 0.99 |
| Suppliers have a computerized method of preventing fraud and abuse thus causing no unnecessary delays | 6.20% | 26.40% | 13.90% | 33.30% | 20.10% | 3.35 | 1.24 |
| **Average** | | | | | | **3.58** | **1.12** |

Results from Table 3 revealed that majority of the respondents who were 73.6% agreed that suppliers have an appropriate fleet management to ensure goods and services are delivered on time, 16% disagreed while 10.4% were neutral to the statement. Further, 53.4% agreed that suppliers have a computerized method of preventing fraud and abuse thus causing no unnecessary delays, 32.6% disagreed with the statement while 13.9% were neutral to the statement. The mean of the responses was 3.58 which indicates that majority of the respondents agreed with the statements about on time deliveries. Additionally, the standard deviation of 1.12 indicates that the responses were varied. The results herein imply that suppliers observe time during delivery.

Further, the respondents were asked to give their suggestions on the influence of supplier capacity on performance of state corporations. Majority of the respondents who were 78% noted that supplier capacity enables suppliers to hold enough stock ready for dispatch at any time an order is made. Also, 84% noted that supplier capacity is important for seamless services. In addition, 77% of the respondents posited that suppliers should be sensitized on the use of technology especially in tendering.

The findings of the study concur with those of Weele (2005) who noted that capacity is one of the key factors for any company's success and therefore suppliers should be evaluated based on the criterion. Further, Barla (2013) suggested a criterion that is called Technological level and according to the author, this criterion should be a general assessment of the supplier's capability in terms of innovation and technology.

### 4.2 Regression Analysis

#### 4.2.1 Correlation Analysis Results

The correlation matrix is illustrated in Table 4.

**Table 4: Correlation Matrix**

| | | Performance | Supplier Capacity |
|---|---|---|---|
| Performance | Pearson Correlation | 1.000 | |
| | Sig. (2-tailed) | | |
| Supplier Capacity | Pearson Correlation | .679** | 1.000 |
| | Sig. (2-tailed) | .000 | |

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

The correlation analysis results in Table 4 revealed that there was a positive and a strong significant association between supplier capacity and performance of state corporations as supported by (r=0.679, p=0.000). This implied that both supplier capacity and performance of state corporations change in the same direction.

#### 4.2.2 Regression Analysis Results

The model fitness is illustrated in Table 5.

**Table 5: Model Fitness**

| **Indicator** | **Coefficient** |
|---|---|
| R | 0.679 |
| R Square | **0.461** |
| Adjusted R Square | 0.457 |
| Std. Error of the Estimate | 0.5769204 |

The study sought to establish the relationship between supplier capacity and performance of state corporations. An ordinary least square regression model was used. The results of the model summary given in Table 5 revealed that supplier capacity explained 46.1% of the total variations in performance of state corporations in Kenya.

Table 6 provides the results on the analysis of variance (ANOVA).

**Table 6: Analysis of Variance**

| Indicator | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 40.457 | 1 | 40.457 | 121.550 | 0.000 |
| Residual | 47.263 | 142 | .333 | | |
| Total | 87.719 | 143 | | | |

The results presented in Table 6 indicate that the overall model was statistically significant as supported by a P value of 0.000 and F statistic of 121.55. The results imply that supplier capacity is a good predictor of firm performance.

Table 7 presents the regression of coefficients results.

**Table 7: Regression of Coefficients**

| | B | Std. Error | t | Sig. |
|---|---|---|---|---|
| (Constant) | 1.012 | .262 | 3.868 | .000 |
| Supplier Capacity | 0.811 | .074 | 11.025 | .000 |

The specific model;

$Y= \beta_0+ \beta_4 X_4+e$

State Corporations Performance = 1.012+0.811 Supplier Capacity

The findings in Table 7 show that there is a positive and significant relationship between supplier capacity and performance of state corporations in Kenya as supported by a p value of 0.000 and a beta coefficient of 0.811. This implies that an increase in supplier capacity by 1 unit would increase the performance of state corporations by 0.811 units. The findings of this study concur with those of Weele (2005) who noted that capacity is one of the key factors for any company's success and therefore suppliers should be evaluated based on the criterion. Further, Barla (2013) suggests a criterion that is called Technological level and according to the author, this criterion should be a general assessment of the supplier's capability in terms of innovation and technology.

## 5.0 CONCLUSION

The study concluded that supplier capacity influenced the performance of state corporations in Kenya. This can be explained by the regression results which showed that the influence was positive and significant. This implied that evaluating supplier capacity is very critical and paramount in the performance of the organization and this study found out that supplier maximum productive capacity in normal working period is high, which is actually a good thing.

## 6.0 RECOMMENDATIONS

The study recommended a need for suppliers to enhance their capacity to meet the expectations of their customers. Capacity is one of the key factors for any company's success and therefore suppliers should be evaluated based on this criterion. Some of the criterion that firms can use to assess their suppliers is Technological level, which involves general assessment of the supplier's capability in terms of innovation and technology. Further, the study recommended that state corporations managers should ensure that all their suppliers adopt the modern technology as it will help them improve their capacity performance that will indeed help curb any cases of lack of goods and supplies.

## REFERENCES

Awino, Z. B. (2002). Purchasing and supply chain strategy: Benefits, barriers and bridges. An Independent Conceptual Study Paper in Strategic Management, School of Business, University of Nairobi September.

Barla, S. B. (2011). A case study of supplier selection for lean supply by using a mathematical model. *Logistics Information Management*.

Chan, F. T. (2014). Performance measurement in a supply chain. *The international journal of advanced manufacturing technology*, *21*(7), 534-548.

Choy, K. L. (2003) on the development of a case based supplier management tool for multinational manufacturers. *Measuring Business Excellence* 2002; 6(1), 15–22,

CIPS. (2013). Monitoring the Performance of Suppliers-CIPS Positions on Practice. CIPS.David A. Garvin, *Harvard Business review. 1987. Retrieved December 23, 2012."Quality handbook"*.

Erdem & Göcen (2012). A review and critique of supplier selection process and practices. *Business school papers series 1, no. 1 (2006)*

Lagoudis, I. N., Lalwani, C. S., & Naim, M. M. (2006). Ranking of factors contributing to higher performance in the ocean transportation industry: a multi-attribute utility theory approach. *Maritime Policy & Management*, *33*(4), 345-369.

Liu J, Ding F.Y., & Loll V. (2010). Using data envelopment analysis to compare suppliers for supplier selection and performance improvement. Supply Chain Management: *An International Journal*; 5(3) 143–50.

Muralidharan, C., Anantharaman, N., & Deshmukh, S. G. (2002). A multi-criteria group decisionmaking model for supplier rating. *Journal of supply chain management*, *38*(3), 22-33.

Mutai, J. K., & Okello, B. (2016). Effects of supplier evaluation on procurement performance of public universities in Kenya. *International Journal of Economics, Finance and Management Sciences*, *4*(3), 98-106.

Schiele, H. (2007). Supply-management maturity, cost savings and purchasing absorptive capacity: Testing the procurement–performance link. *Journal of purchasing and supply management*, *13*(4), 274-293.

Zionts, S. (2002). Some Thoughts on Research in Multiple Criteria Decision Making *Computers and Operations* Research, 1(6), 387-401