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Influence of Supplier Appraisal on Supply Chain Risk Management in Egerton University, Kenya

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Abstract:
Modern organizations operate in a very commercially pressured global environment where competition is strong and to remain competitive and efficient, risks must be taken. The purpose of this research is to determine the influence of supplier appraisal on supply chain risk management in Egerton University. The study was guided by the following theories, Strategic choice theory and transaction-cost theories. The target population of the study comprised of employees attached to the procurement department of Egerton University which are 32 in number. Census survey design was employed whereby all members of the target population participated in the study. The instrument was pilot tested to ascertain the reliability of the research instrument using Cronbach Alpha. The reliability of the research instrument was found to be 0.879 which was considered reliable. The study employed both descriptive and inferential statistics to present and analyze the data. The Statistical Package for Social Science (SPSS) a computer programme for windows aided the data analysis. The study established that supplier appraisal was the most influential influencing supply chain risk management in Egerton University with correlation of (r = 0.763, p < 0.05). The study recommends that procurement departments the adoption of supplier appraisal to improve its supply chain risk management. The study also recommends further research to be done to capture other public universities campuses in other counties to establish whether the findings will be the same.

Keywords: Supplier appraisal, supplier relationship, supply chain risks, Egerton University.

1. Introduction

1.1. Background of the Study
According to Ju¨ttner et al., (2003) Supply chain risk management is the identification and management of risk for the supply chain through a coordinated approach amongst supply chain members in order to support the supply chain in the achievement of its objectives. Another similar definition given by Christopher and Lee (2004) view risk as the effect of external events such as wars, strikes or terrorist attacks and impact of changes in business strategy. Modern organizations operate in a very commercially pressured global environment where competition is strong and to remain competitive and efficient, risks must be taken. Carter and Rogers (2008) define SCRM as the ability of a firm to understand and manage its economic, environmental, and social risks in the supply chain which could be materialized by the adoption of contingency planning and having a resilient and agile supply chains.

It is particularly important to engage the support of managers who work close to the activities and processes under consideration (Khan & Burnes, 2007). Supplier relationship management involves a radical change which demands for a new collaborative way of working amongst suppliers, clients and other stakeholders throughout the supply chain, including the return stream in order to reduce supply chain risks.

1.1.1. Supply Chain Risk Management
An increasing dependence on suppliers leads companies to be even more exposed to uncertain events, so that supply risk management (SRM) becomes necessary as part of supplier management (Musuya & Namusonge, 2013). Moreover, one of the key factors contributing to disrupting supply chains is the focus on lean supply chains in academia and industry during the 90s. Zero-inventory and just-in-time movement of goods became the dominant model that increased the sensitivity of supply chains. Little issues quickly become big issues. In addition, supply chains have become more global, increasing the order to delivery cycle times by a factor of four or five. This acts to amplify the potential of a disruption and the impact. Outsourcing has also become the dominant model, increasing the forces driving disruptions such as other customers competing for volume and attention, information flow issues, mistrust, win-lose negotiations, financial stress, misalignment of interests and goals. These have increased the likelihood of a disruption exponentially.

As a common term to designate the likelihood of occurrence of such events we use the word risk: Risk is a concept that has applications in everything we do. It has several components, not the least of which is the lack of knowledge about the events that may impact us and our ability to manage them. In order to understand risk, we first need to define and decompose it, specifically as it pertains to the supply chain. Under these statements, a common sense definition of risk – acknowledged by the International Organization for Standardization (ISO, 2002) – mainly deals with two of its essential components: losses (along with related amounts) and uncertainty of their occurrence.

1.1.2. Strategic Supplier Relationship
Strategic Supplier Relationship is achieved by strategically planning for, and managing, all interactions with third party organizations that supply goods and/or services to an organization in order to maximize the value of those interactions. Companies are developing a new set of Supplier Relationship Management (SRM) capabilities – including processes, governance mechanisms, and systems to manage Suppliers on a day-to-day basis over the full relationship life-cycle. According to McCue, C. P. and Johnson, B. R. (2010), Supplier relationship is defined as a set of principles, processes, and tools that can assist organizations to maximize relationship value with suppliers and minimize risk and management of overheads through the entire supplier relationship life cycle.
Strategic Supplier Relationship has two aspects with respect to supply chain risk management, which are: Clear commitment between the supplier and the buyer, and the objective of understanding, agreeing, and whenever possible, codifying the interactions between them CIPS (2012). A good Supplier Relationship Management (SRM) is an effective practice that will allow an organization to: Identify strategic suppliers based on relative importance (supplier stratification); Define operational expectations and establish a governance structure; process for internal and supplier interactions across the life cycle of the supplier relationship; Define formal processes for management involvement in the relationship; Clarify internal roles and responsibilities; Establish processes to effectively manage performance; and finally Develop supplier capabilities to continuously improve the value of the organization.

1.1.3. Background of Egerton University
Egerton University was founded in 1939 and was originally named Egerton Farm School. It was established by a large land grant of 740 acres by Lord Maurice Egerton of Tafton. The school's original purpose was to prepare white European youth for careers in agriculture. By 1955, the name had changed to Egerton Agricultural College. A one-year certificate course and a two-year diploma course in agriculture were offered. In 1958, Lord Egerton donated another 1,100 acres of land. In 1987, the College was finally recognized as a Chartered Public University (Egerton University Catalogue, 2014).
Egerton University is headed by a Chancellor whose role is ceremonial, then followed by a Vice Chancellor who is the accounting Officer for the University. It has a well-established procurement department headed by a Deputy Chief Procurement Officer, who reports to the Vice Chancellor. The procurement function is regulated by PPOA, which is the Authority mandated to Oversee all government procurements in Kenya. The Head office is based in Njoro, Nakuru. Egerton University practices central purchasing whereby all procurement is carried out from the head office where they purchase goods, services and works for all their other campuses. There are many supply chain risks faced by the University since most of the suppliers are based in Nairobi and managing their supply chain risks has become a challenge. The University is committed to risk management especially on the wet areas like the supply chain, teaching department and the catering departments (Egerton University Strategic Plan 2013-2018).

1.2. Statement of the Problem
Modern organizations operate in a very commercially pressured global environment where competition is strong and to remain competitive and efficient, risks must be taken. Strategic Supplier Relationship enables organizations to manage suppliers effectively and provides the means to secure real, tangible and dramatic benefits from the supply base that would not otherwise be realized.
Egerton University audit report (2014), on the procurement process, noted that there were delays in the procurement process, especially on the critical areas like teaching and catering. These delays have caused unrest and strikes in various occasions, especially when it concerns teaching materials, repairs of water systems and drainages, sanitation and foodstuffs. These delays sometimes force the departments to incur extra costs by use of petty cash or imprest. Most of the delays as indicated are caused by suppliers' failure to respond to the university's orders promptly, which is largely due to lack of proper communication from the procurement department to the suppliers and partly due to non-payment of supplies by the university. Supplier relationship has not been put in place in Egerton University as there is no record indicating how suppliers have been performing with the University, Supplier appraisal is not clear neither, there are no contracts in place for critical areas like Plant maintenance and repairs, and supplier payments is not good. This pauses a risk to the supply chain as the University gives orders to suppliers without evaluating their performance record and ability to deliver. It is for this reason that the study proposes to assess the influence of strategic supplier relationship on supply chain risk management in Egerton with a view to minimize risks and overhead costs.

1.3. Purpose and Objective of the Study
To determine the influence of strategic supplier appraisal on supply chain risk Management in Egerton University, Kenya.

1.4. Research Hypothesis
- $H0_1$: $\mu_1 = \mu_1$: Supplier appraisal does not influence supply chain risk management in Egerton University..

2. Literature Review

2.1. Theoretical Review
This study was guided by Strategic Choice Theory.

2.2. Theoretical Review
A theoretical framework can be defined as a collection of interrelated ideas based on theories. It is a reasoned set of prepositions which are derived and supported by data or evidence. This section will provide the theoretical framework, and two key theories will be included in this study, namely strategic choice theory and transaction cost theory.

2.2.1. Strategic Choice Theory
Strategic choice theory considers the interaction between organizational actions and events (De Rond & Thietart, 2007). The integrative approach of strategic choice theory is of importance and beneficial for strategic management, for instance, by stressing cross-functional cooperation in organizations (Ritchie and Brindley, 2007). Theories enhance research and practice as they help make sense of complex and dynamic environments (Chicksand & Johnston, 2012). Strategic choice theory depicts the relationship between top management´s choices and managing risks and the overall interaction between environment and organizations. It is developed to underline the inadequacy of deterministic organizational views and stress the importance of managerial choice (Child, 1997). Organizations are viewed to be partially influenced by environments and primarily affected by top management choices (Barry, 2004). Despite the opposing views to deterministic management theories, (Hendricks and Singhal, 2005), established the strategic choice resource dependence model to further underline the interdependence of environment and organizations in regards of strategic choices, actions and overall risk management. Strategic choice theory is characterized by an integrative view and thus also underlines the view of businesses as adaptive organizations, which learn over time; thereby, their strategic choices lead to actions directed by top management (Musa, 2007).
The strategic type of organizations, Analyzer, Defender or Prospector thereby influences how managers and organizations organize and operate in purchasing; according to strategic choice theory prospectors would strive to be proactive, innovative (Nollet et al., 2005) and produce internally or even change their product portfolio, whereas defenders would rather source the item from an established supplier in order to ensure efficient production and establish a stable product portfolio (Shook et al.,2009).
In the context of this study, some of the variables are supplier selection, supplier appraisal, supplier development and supplier collaborative initiative and it focuses on involving the top management critical decision to make these strategic decisions to invest on these practices to manage supply risks of their organizations and achieve a competitive advantage.

2.3. Empirical Literature review

2.3.1. Supplier Appraisal
According to Shin-Chan (2008), insight into supplier on its key performance and business practices helps reduce business risk, particularly given companies' increasing dependence on the suppliers. Risks can be financial and operational and increase with geographic distance. A risk area of increasing concern is the performance of sub-tier suppliers whom the prime supplier has no contact with or knowledge of. By measuring supplier performance, an enterprise can set a threshold for its suppliers that can lead to higher-quality results. Companies should better plan new products and services based on a good understanding of its suppliers' capabilities and performance levels. Understanding local suppliers can help determine if they are capable of reducing total costs enough to outperform offshore suppliers. In addition, suppliers can provide technologies to their customers that help them develop new products and services that can add revenue to the customer 's bottom line and enhance their competitive position, thus helping customers add value to the top line in addition to removing cost from the bottom line (Gordon, 2000).
Birrell (2005) noted that the criteria used in the supplier appraisal process to select a suitable supplier empowers the procuring entity to determine whether the supplier is capable or competent enough to perform the work within budget, on schedule and at the required safety and quality standards. Birrel further noted that selecting the proper evaluation criteria is essential especially to a private procuring entity whose objectives almost always comprise of maximizing profit, market share and future growth. Cebeci, Kahraman and Ulukan (2003) noted that an organization should require its suppliers to have a sound financial position. Financial strength can be a good indicator of the supplier's long-term stability. A solid financial position also helps ensure that performance standards can be maintained and that products and services will continue to be available at the most competitive prices (Cebeci et al. 2003). They also noted that for an organization to provide a consistently high quality product or service, achieve cost savings, buy at the right price, promote successful development efforts, and ensure future improvements, a firm needs competent technical support from its suppliers. Gordon (2006) observed that developing a robust, easy-to-deploy method of evaluating suppliers is a critical business competency. Gordon noted that the methodology should be sound and the approach practical. According to Arsan (2011), supplier evaluation may take various approaches which all influence the quality of data obtained from the suppliers which reflect the true picture of the suppliers. Bello (2003) noted that there are many sources which the buyer should use to check or verify the dependability and reliability of each supplier. Arsan (2011) observed that desk appraisal is one of the widely used to collect information about the supplier. Arsan further noted that desk appraisal uses published or unpublished information already in existence and is particularly applicable to product and financial appraisals. Arsan added that desk research should always precede field research since it will indicate what matters need to be investigated. Beil (2009) noted that field research is important in supplementing desk research

especially when appraising suppliers of high risk/high value products and when long term, collaborative relationships are under consideration.

According to Arsan (2011) third party appraisals may also be undertaken mostly through a variety of agencies especially when assessing the compliance to quality systems such as BS/EN ISO 9000. Arsan (2011) emphasized the need for conducting site visits in supplier premises. Arsan noted that such visits are essential when appraising potential new suppliers of high value/high risk items or tenders for major projects. This is collaborated by Bello (2003) who observed that site visits enable information provided on a questionnaire to be verified and answers given by the supplier's staff in the course of the visit to be evaluated.

2.3.2. Supply Chain Risk Management
Risk management is the function responsible for managing risks in organizations, meaning taking actions that reduce the consequences or probability of an unwanted occurrence or failure. It can also be defined as taking actions to shift the odds in your favour (Paulsson, 2004, 79, Ref. The Royal Society, 1992). The aim of supply chain risk management is to identify the potential sources of risk and implement appropriate actions in order to avoid or contain supply chain vulnerability (Narasimhan and Talluri, 2009).

Kouvelis et al. (2006) view SCRM in terms of managing the uncertainty of demand, supply and costs. Carter and Rogers (2008) define SCRM as the ability of a firm to understand and manage its economic, environmental, and social risks in the supply chain which could be materialized by the adoption of contingency planning and having a resilient and agile supply chains. There are also other notations related to risk management in supply chains. Rice and Caniato (2003) define supply chain resilience as the ability of an organization to react to an unexpected disruption and maintain operations after the event. Resilience can be achieved by employing high flexibility and adequate redundancy in the organization.

The supply chain risk management process broadly constitutes: risk analysis incorporating risk identification, assessment and response and secondly risk control incorporating risk mitigation and monitoring (Neiger *et al.*, 2009). Proper implementation of all stages in this process will result in the recognition of potential risk affecting the supply chain. Manuj and Menzer (2008) believe that managing risk should at least comprise the processes of identification, evaluation and mitigation.

According to Musa (2013) Risk identification involves determining which risks are likely to affect the supply chain and documenting the characteristics of each risk. It is proposed that risk identification should be undertaken on a regular basis throughout the life cycle of the supply chain. Further risk identification should address both the internal and external risks.

During the risk assessment phase, the likelihood/probability of the risk occurring and the severity of the impact of the identified risk are quantified. Potential risks are graded and classified as to whether they are low, medium or high in their likelihood that they will occur. Risk assessment in the context of risk management is a continuous and iterative interplay of actions that take place throughout the supply chain (Manuj and Menzer, 2008).

For each risk with an inherent score, the following response strategies could be applied: avoidance (through eliminating specific threat by eliminating cause), reduction (taking action to reduce the probability of the supply chain risk occurring), sharing (sharing risk with or shifting risk to others e.g. (outsourcing) and acceptance (accepting risk with low impact or deal with the consequences of the risk) (Manuj and Menzer, 2008).

According to Musa (2013) risk mitigation is a proactive and a reactive measure. It aims to lessen the effects that assessed risk might have on different tasks of the supply chain or the outcome of the supply chain process. The broad actions of risk mitigation actions include preemptive actions or contingency actions. Manuj and Menzer (2008) propose that risk mitigation actions should be cost effective and efficient in that they aim to reduce risk exposure in the supply chain. Risk monitoring and control involve the monitoring of risk plans to ensure the achievement of the outlined objectives.

Supply chain risk management strategies recommended by authors Ritchie and Brindley (2007) include risk indemnity, information sharing, partnerships, outlined performance benchmarks, customary cooperative reviews, mutual training and improvement programs, joint pro-active evaluations and preparation exercises, expanding risk management awareness and skills, combined strategies, inter-partnership structures, and relationship marketing initiatives.
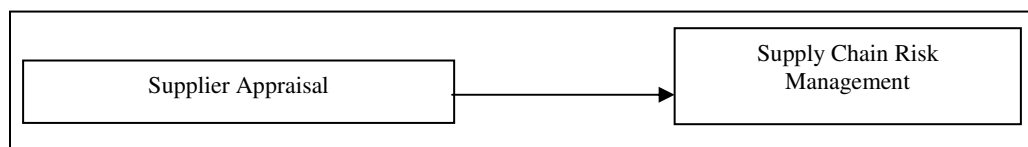
2.4. Conceptual Framework

Figure 1: Conceptual Framework.

3. Research Methodology

3.1. Research Design
This study employed a descriptive survey research design The study research design used descriptive survey. This design was chosen because it uses data collected from research questions to answer questions concerning current status of a phenomenon (Mugenda & Mugenda, 2003). Mertler & Charles (2005) argued that when dealing with people, situations and conditions about which we wish to

know more, then descriptive survey is best. These arguments favor this study hence the choice of this design. This research used both quantitative and qualitative methods. Qualitative helps to understand people's perceptions while quantitative focuses on prediction.

3.2. Sample Size

A sample is a subset of the target population and is necessitated when the latter is too large to be included in the study. Given that the target population in this study was relatively small (Population<100), a census survey design was employed whereby all members of the target population participated in the study. According to Kothari (2008) census approach enhances the generalization of the research findings. This is due to the fact that it eliminates both the sampling error and sampling bias.

3.3. Data Collection Procedure

The structured questionnaire was used to collect the information from the employees attached to the procurement department of Egerton University. Where applicable the questionnaire was in the form of modified Linkert five-point scale. A total of 32 questionnaires were returned, representing 100% return rate.

3.4. Data Analysis

Once the raw data had been collected, the first step was to clean the data for any inconsistencies. The coding of the data was the next step. Descriptive and inferential statistics were used to explain results of the findings. These included means, frequencies and percentages. Analysis was done using a computer programme, the Statistical Package for Social Sciences (SPSS,23). In addition, the researcher used Pearson correlation and multiple regression so as to determine the relationship between the independent variable supplier and appraisal supply chain risk Management (dependent variable)

4. Results and Findings

4.1. Descriptive Statistics

Descriptive statistical analysis was used to analyze strategic supplier relationship variables and supply chain risk management variables (supplier selection, supplier appraisal, supplier development, supplier collaborative initiative and supply chain risk management). In reference scaling (Likert scale) used in the study design, 5 represented strongly agree, 4 represented agree, 3 represented Not sure, 2 represented disagree and 1 represented strongly disagree, therefore strongly disagree (1) was minimum, strongly agree (5) was maximum. The mean was analyzed based on the respondent's choices scaled between strongly agree and strongly disagree as indicated in Table 2.

Elements of Supplier Appraisal	N	Min	Max	Mean	Std. Dev.
Supplier visits is usually done before choosing a supplier in the company	32	1	5	4.31	1.33
There is an "approved vendor list" available to the Purchasing Department which ensures all suppliers are qualified.	32	1	5	4.63	0.492
Vendor rating is usually done in ranking the supplier performance	32	1	5	4.28	0.888
Egerton has up-to-date ISO 14001, ISO 9000 certification of the suppliers	32	1	5	4.22	1.07
Supplier rating system and supplier audit system is available within the purchasing department	32	1	5	3.75	1.437
Valid N (listwise)	32				

Table 1: Elements of Supplier Appraisal

According to the findings, most aspects had their mean inclined towards 4(agree) showing that most respondents agreed with most aspects of Supplier Appraisal. This could be attributed to the fact that Supplier Appraisal could reduce supply chain risks.

Elements of Supply Chain Risk Management	N	Min	Max	Mean	Std. Dev.
Risk management can help companies ensure the smooth and successful running of purchasing and supply operations	32	1	5	4.84	.369
Risk management can contribute to the resilience of a supply chain as a whole and to business continuity	32	1	5	2.63	.492
Successful prevention and mitigation of supply chain risks can help ensure good financial performance and shareholder wealth	32	1	5	4.63	.492
Good risk management can help in profit maximization	32	1	5	4.72	.457
Good risk management ensures operations efficiency	32	1	5	4.84	.369
With sound risk management market share maximization can be achieved.	32	1	5	4.72	.772
Valid N (listwise)	32				

Table 2: Elements of Supply Chain Risk Management

From the findings it's evident that most of the respondents strongly agreed with most aspects of Supply Chain Risk Management with a mean of approximately 5 (strongly agree). However, respondents were indifferent on whether risk management can contribute to the resilience of a supply chain as a whole and to business continuity with a mean of approximately 3(not sure).

4.2. Influence of Supplier Appraisal on Supply Chain Risk Management
The second objective of the study was to determine the influence of supplier appraisal on supply chain risk management in Egerton University, Kenya. The key elements of supplier appraisal on supply chain risk Management were: - Supplier visits done before choosing a supplier in the company, approved vendor list available to the Purchasing Department which ensures all suppliers are qualified, Vendor rating usually done in ranking the supplier performance, Egerton has up-to-date ISO 14001, ISO 9000 certification of the suppliers, Supplier rating system and supplier audit system available within the purchasing department. The study used Pearson Correlation to establish the kind of relationship that existed between supplier appraisal and supply chain risk management.

		Supply Chain Risk Management
Supplier appraisal	Pearson Correlation	.763**
	Sig. (1-tailed)	.000
	N	32

Table 3: Correlation between Supplier appraisal and Supply chain risk management
*** Correlation is significant at the 0.05 level (1-tailed).*

Based on Table 3 above, the results revealed that there was a strong statistically significant positive relationship of ($r = 0.763$, $p < 0.05$) between Supplier appraisal and Supply chain risk management. This suggests that supply chain risk management will be high in universities that adopted supplier appraisal.

5.1. Summary of the Findings
Universities have increased over the past few years thus the need to reduce supply chain risks through supply chain risk management. Supplier Appraisal therefore plays a central role towards ensuring supply chain risk Management is enhanced in public institutions. The main objective of this study was to establish the influence of supplier Appraisal on organizational performance.

5.1.1. Findings on the Influence of Supplier Appraisal
Based on the results, it was established that majority of the respondents strongly agreed that supplier visits is usually done before choosing a supplier in the company, availability of approved vendor list to the Purchasing Department which ensures all suppliers are qualified, Vendor rating is usually done in ranking the supplier performance and apart from the availability of Supplier rating system and supplier audit system within the purchasing department Egerton has up-to-date ISO 14001, ISO 9000 certification of the suppliers represented by with a mean of approximately 5 (strongly agree). Accordingly, the study revealed that supplier appraisal had a strong influence on supply chain risk management in Egerton University, with a strong positive correlation of 76.3%. Thus there was statistically significant positive relationship between supplier appraisal and supply chain risk management in Egerton University, Kenya.

5.2. Conclusion
The aim of the study was to determine the influence of supplier Appraisal on supply chain risk Management in Egerton University, Kenya. Based on the results from data analysis and findings in relation to the study objective, the following conclusion was made.

5.2.1. Conclusion on Supplier Appraisal
Supplier appraisal has statistically strong significant positive influence on supply chain risk management in Egerton University, Kenya. This suggests that universities are likely to enjoy significant improved supply chain risk management when they appraise their suppliers.

5.3. Recommendations for the Study

5.3.1. Institutional Recommendations
First institutions should come up with supplier appraisal to reduce supply chain risk. This could involve introducing of supplier appraisals among other aspects and creating awareness to ensure all key procurement personnel are informed accordingly. Organizations also may allocate sufficient funds to research to enable to enhance the reduction of supply chain risks. Finally, employees need to be involved in key decision making enhancement of supply chain risk management.

5.3.2. Policy Recommendations
As indicated from the findings of the study supplier appraisals improve/enhance the supply chain risk management in Universities, it is therefore necessary that public institutions implement/adopt supplier appraisals to enhance their supply chain risk management. Different supplier relationship initiatives should be adopted as per policies of the institutions. It is also important that procurement departments in public universities/organizations be responsive to the needs and constantly changing requirements of supply chain risks

and the effect of environmental issues in order to improve and update policies as need be. This will enhance the supply chain risk management in universities.

5.4. Recommendations for Further Research
This research was based on influence of supplier appraisals on supply chain risk Management in Egerton University, Kenya. Basically there are other supplier relationship aspects available and they contribute more to supply chain risk Management. Therefore, there is need for more research to capture these aspects to determine whether they have a significant positive effect on supply chain risk management in Universities, or not. Such information obtained from the study shade more light on supplier relationship aspects adopted in public Universities in Kenya are effective in improving their supply chain risk management. The study focused on Egerton university campus only. This limits the generalization of results. Similar studies need to be conducted in other universities. A comparative study can also be done to capture the supplier relationship aspects adopted in public and private universities and their effect on supply chain risk management and determine whether there is a difference in influence. This research selectively captured public university campus in Nakuru County only. A further research can be done to capture other public universities campuses in other counties to establish whether the findings will be the same.

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