

## **EFFECTS OF SUPPLY CHAIN RISKS ON THE PERFORMANCE OF TEA PROCESSING FIRMS: A CASE STUDY OF ITUMBE TEA FACTORY IN KISII COUNTY, KENYA**

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### **Abstract**

*To achieve better management of time, risk is a major concern for most firms. Risk is not a threat, but an opportunity to reduce procurement cycle times. Objectively the supply chain planning problem is to minimize the total expected costs, and maximize the customer demand satisfaction level which is normally a challenge to most firms including. The purpose of the study was to determine the effects of supply chain risks (demand forecast risk, procurement risk and product quality risk) on performance of tea processing firms in Kisii County, Kenya. From the study, TPF was to be able to make decision and take corrective measures on how to manage these risks. The information also would be useful to policy makers, other manufacturing firms and stakeholders. Theory of constraints, Institutional theory, and Resource-based view theory were adopted to support the literature. A descriptive case study research design was used with a target population of 400 respondents. The study therefore took 20% of the target population thus giving a sample size of 80 respondents. Primary data was collected using a structured questionnaire. The collected data was analyzed using descriptive statistics. The findings showed that there is strong association between supply chain management and the performance of tea processing firms and it was supported by 76% of the respondents.*

*Keywords: Supply Chain, Procurement, Business Performance, Demand Forecast, Product Quality*

## INTRODUCTION

Supply chain costs the organization money every year. According to the consortium's findings, the greatest risk is in supply chain functions like planning, sourcing, sales, customer service, receiving variability and quality issues, changes in demand and product variability and transportation. All of these factors impact the inventory levels hence one need to carry excess inventory in order to continue normal operations without risk of stock-outs in stores or line-down situations in factories. As a result, the natural solution is to hold excess inventory so that customers' demands can still be met despite whatever is happening in the world around us. This is an important part of risk mitigation, because companies today cannot afford lost production or lost sales as a result of any type of supply chain disruption (Powell 2006).

Further, muddying the inventory waters is something called "organic inventory growth. That is, permanent inventory buffers that are caused by one-time events. For example, if one of your factories has a rough quarter and really gets beat up because of a line-down situation that was caused by a longer-than-expected lead time from a supplier, there is a natural tendency to ensure that it never happens again. We see this manifest itself at every company we work with; there are always situations where we find buffer inventory added to an existing safety stock target (Handfield, 2007)

Supply chain risks from a global point of view encompasses the myriad activities that entails the internationalization of economy, the frequent and uncertain changes, and the greater competition among firms, the need for continuous innovations, and the growing use of information technologies which force companies to face the challenge of improving their competitiveness (Hines 2004).

Based on responses to the consortium's survey, risks primarily affect the supply chain in four ways: adding cost; increasing inventory levels; increasing lead-times; and reducing speed to market. These difficulties are greater for tea processing firms because their economies of scale and their resources are less than those of large firms (Kallrath, 2006). However, what compensates for these weaknesses is the fact that firms may enjoy greater flexibility because of the simplicity of their internal organization, being faster at adapting and responding to change management (Handfield, 2001). This new situation reveals the need to suggest more

### Statement of the Problem

The manufacturing process consists of many production stages. Each stage may involve more than one plant forming a multi-site supply network manufacturing. A distribution lead time is taken into account in shipping finished and semi-finished products between the plants of the different stages (Hall 2014). Products to be supplied are characterized by volatile demand and

short lifecycle, the stochastic product demand could lead to excessive inventory and production costs or to loss of market share accompanied by unsatisfied customer demand (Powell 2012). According to Tompkins Supply Chain Consortium's survey, the total costs involve production costs, penalty costs, inventory costs as well as transportation costs. Tea processing firms are challenged by the dynamic economic environment, (Hines, T. 2012). Objectively the supply chain planning problem is to minimize the total expected costs, and maximize the customer demand satisfaction level which is normally a challenge to most firms including Itumbe tea factory due to high costs that leads to customer unsatisfactory. SCM literature discusses a lot of different supply chain redesign strategies that can be used to reduce supply chain risk and, as a result, improve chain performance. It is not clear the extent to which these supply chain risks affect the performance of Itumbe tea factory. This study therefore seeks to assess the effects of demand forecast, product quality and procurement risks on performance of tea processing firms in Kisii County.

### **General Objectives**

The general objective of this study was to determine the effects of supply chain risks on performance of tea processing firms in Kisii County, Kenya.

### **Specific Objectives**

- i. To investigate the effects of demand forecast risk on performance of tea processing firms a case of Itumbe tea factory
- ii. To establish the effects of procurement risk on the performance of tea processing firms a case Itumbe tea factory
- iii. To establish the effects of product quality risk on the performance of tea processing firms a case Itumbe tea factory.

According to the consortium's findings, the greatest risk is in supply chain functions like planning, sourcing, sales, customer service and transportation. The planning and sales areas are highly dependent on historical data and forecasts. with the last two years being uniquely difficult and impossible to predict, it is not surprising that planning and sales are high on the list," the benchmarking and best practices report, titled risk is certain: perceptions of future risk on the rise, says. Sourcing and working with suppliers is also simple to understand, as the economy has made supplier relationships very difficult to maintain and a significant number of companies have gone out of business.

Based on responses to the consortium's survey, risk is primarily affecting the supply chain in four ways: Adding cost; increasing inventory levels; increasing lead-times; and Reducing speed to market. This risk among industrial firms should come as little surprise, considering what the global downturn wrought on manufacturers and how economic pressures have highlighted the importance of the supply chain.

Tompkins Supply Chain Consortium's survey respondents have many ways of dealing with risk and are employing a variety of specific solutions. Logistics leaders most often selected initiatives involving government regulations and mandates, forecasting, technology application and inventories.

Demand forecast risk creates a burden for your business. Goals of inventory management usually include minimizing stock-outs while avoiding the high cost of holding excess inventory. When you can't accurately predict demand, you run risks of one of these happening. You may over-buy inventory to protect against running out. This leads to the need to store extra products, offer discounts or throw out excess. If you buy less to prevent waste, high demand can lead to stock-outs and upset customers (Kumar, 20172).

## **RESEARCH METHODOLOGY**

### **Research Design**

This research adopted a descriptive case study research design. According to Cooper and Schindler (2010), a descriptive case study is concerned with finding out the what, where and how of a phenomenon. This study therefore was able to generalize the findings to all the factories. This method is concerned with the intense investigation of problem solving situations in which problems are relevant to the research problem. The study attempts to describe and define a subject, often by creating a profile of group of problems (Cooper & Schindler, 2009).

### **Target Population**

According to Schindler and Cooper (2010), population is the total collection of elements with common observable characteristics about which some inferences can be made. The target population of this study was employees of Itumbe tea factory, Kisii County. The study specifically focused on Itumbe tea factory since it gave the specifically required data for the study as compared to targeting all factories involved in the tea processing. The population was stratified as follow.

Table 1: Target population

Categories	Target Population
General Manager	1
Administration Manager	1
Operations Manager	1
Procurement Department	100
Production Department	80
Marketing And Sales Department	77
Transport And Logistics Department	140
Totals	400

### Sample Design and Sample size

Sampling is a process of selecting a number of individuals or objectives from a population such that the selected group contains elements that are representative of characteristics found in the entire group (Kombo, 2012). In selecting the sample that was studied the employees were classified according to the status of the group members. Stratified random sampling method was used to select a sample population from the 400 employees comprising of a general manager, administrative manager, operations manager, 100 officers from procurement department, 80 from production department, 77 people from marketing and sales department and 140 from transport and logistics departments. According to Mugenda and Mugenda, (2013) a representative sample is at least 10- 30% of the study population. The study therefore took 20% of the population thus giving 82 respondents.

### Data Collection Instruments

This study used a structured questionnaire to collect primary data. The questionnaire had both closed and open – ended questions. The closed ended questions was used to test the rating of various attributes and this helped in reducing the number of related responses in order to obtain more varied questions. The open –ended questions provided additional information that may not have been captured in the close- ended questions. The questionnaire was carefully designed and tested with a few members of the population for further improvements then personally deliver the questionnaires to the respondents.

### ANALYSIS AND FINDINGS

Quantitative data collected was analyzed by the use of descriptive statistics and presented through percentages, means, and frequencies. The information was displayed by use of bar charts, graphs and pie charts. A Likert scale was used to assess the extent of association within the variables.

The researcher sought to find out the influence procurement risk on the performance of tea processing firm. The respondents were asked to state the extent of agreement of procurement risk on the performance of tea processing firm.

From table 2, it was reported by a moderate extent of 3.68 that understanding the main categories of risks faced in the procurement process assists in risk assessment and helps in planning for practical manageable solutions that can lead to sound performance of tea processing firms.

It was also, reported by a moderate extent of 3.31. that purchase requisition price regulation is essential for good performance of tea processing firms further it was suggested by a moderate extent of 3.41 that measures to manage risk should be based on the quality of the procurement process applied across all activities and a moderate extent of 3.54 suggested that for performance to be achieved competition, transparency, and separation of functions are the foundation of risk mitigation, since they ensure any fraudster or corrupt behavior will not go unnoticed and this will lead to sound performance of tea processing firms.

Further it was reported that understanding the main categories of risks faced in the procurement process assists in risk assessment and enables practical management and operational measures that should be taken to mitigate those risks. Further it was noted that some measures to manage risk are based on quality of the procurement process applied across all activities.

Table 2: Influence of Procurement Risks on Performance of Tea Processing Firm

S.No	Category	Ranks					Weighted Averages
		1	2	3	4	5	
1.	Influence of procurement risk On performance of tea estates	6	11	25	31	9	3.31
2.	Purchase Requisition follows Procurement regulations to avoid risks	5	8	15	34	20	3.68
3.	Supply risk structures influence Performance	6	15	16	19	26	3.54
4.	Procurement risk is the last step In factory's supply chain risk management	8	12	15	16	31	3.41
5.	Procurement risk can be used To ensure supply chain process are in line	5	11	20	19	27	3.63

## CONCLUSION

The researcher drew the following conclusions from the study based on the research objectives highlighted in introduction section.

### **Effects of Demand Forecast Risk**

The study sought to establish the effects of demand forecast risk on the performance of tea processing firm. The findings reaffirmed that demand forecast risk arises because of changing customer needs and predicting demand for a product or service is absolutely difficult for uncertain demand products prices are not steady and vary depending on demand levels but using technology to monitor sales over time can help offset demand that fluctuates from one period to another.

### **Effects of Procurement Risk**

For better management of the financial performance of tea processing firm it was reported that one way to analyze risks of procurement is to develop and use a checklist to measure how well a procurement department is in compliance with the law and ethical standards. Checklist could be valuable to prevent and detect corruption and fraud by guiding procurement staff throughout the processing a transparent and effective manner.

### **Effects Product Quality Risk**

Product quality risk is an important aspect for the improvement and development of the financial capability of an organization. In order to keep the tea processing industry in course, there must be effective training on product quality to enhance performance since any inherent quality problems in any of the supply members triggers a domino effect that spread through and could affect the performance of the firm.

## **RECOMMENDATIONS**

In order to manage the performance of tea processing industry efficiently the researcher made the following recommendations. For effective performance of tea processing firm the greatest risk in supply chain function like planning, sourcing and customer service should be done with due diligence to enable the firm achieve good performance.

For effective management of tea processing firm the firm, understanding the main categories of risks faced in the procurement process assists in risk assessment and planning practical management and operational measures that should be taken to mitigate the risks.

Emphasis should be focused on training on product quality and enhance team players in building good product quality and the firm at cost should emphasis on mitigating operational risk, disruption and reputational risk on product.

## AREAS FOR FURTHER RESEARCH

The researcher only relied in questionnaire to study the effects of supply chain risk on the performance of tea processing firm. However future research should use an in depth interviewing or content analysis of reports on supply chain risks to provide a more complete picture of how supply chain risks affect the performance of tea processing firm.

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