INFLUENCE OF LOGISTICS MANAGEMENT ON DISTRIBUTION PERFORMANCE IN KENYA: CASE OF KENYA FARMERS ASSOCIATION

Lilian Adhiambo Onyango
Student, Jomo Kenyatta University of Agriculture and Technology, Kenya
alillianne@yahoo.com

Patrick Mwangangi
Jomo Kenyatta University of Agriculture and Technology, Kenya


ABSTRACT

The agricultural sector in Kenya is an important economic activity in terms of income generation, employment creation, foreign exchange earnings and tax revenue. Over the years, the economic performance of agriculture has had repercussions on all spheres of life, both upstream affecting farm input suppliers and downstream the transport sector; on savings and investment intermediation; consumption of goods; and households’ ability to pay for education, health and other services. This makes logistics management on distribution performance critical to this sector as they strive to continuously improve their services to meet farmers’ expectation. The overall objective of this study was to examine the influence of logistics management on distribution performance citing Kenya farmers Association. A descriptive research design was used in this study. The study targeted farmers association in Kenya. Primary data was collected using questionnaires from the farmers in Kenya. From the findings the study concludes that transport management influences the distribution performance for it is largest component of the cost in business`
logistics. Information flow helps organization to synchronize its distribution operations. Inventory Management reduces carrying costs of inventory, proper asset management, increased inventory forecasting, inventory valuation and inventory visibility. Further, the study concludes that order processing enhances effective inventory management and provides the desired service level to farmers. As the study suggested, it is recommended that top management should remain committed to logistic management and also management systems should be put in place.

**Key Words:** Logistics management, Distribution performance, Order processing, Information flow, Transport management, Inventory management.

**INTRODUCTION**

Logistic management is the management of the flow of goods. It includes the movement and storage of raw materials, work-in-process, inventory, and finished goods from point of origin to point of consumption (Ellram and Cooper, 2011). The agricultural sector in Kenya is an important economic activity in terms of income generation, employment creation, foreign exchange earnings and tax revenue. Over the years, the economic performance of agriculture has had repercussions on all spheres of life, both upstream affecting farm input suppliers and downstream the transport sector; on savings and investment intermediation; consumption of goods; and households’ ability to pay for education, health and other services. Even politics at all levels cannot ignore or be ignored by agriculture, not least in the race for well-paying jobs, sinecures, and contracts in the various institutions that serve as gravy trains in the agricultural sector cash cow. (Murithi, 2008)

Researchers have found positive relationship between SCM and the improvement of organization’s competitiveness and distribution performance (Li et al., 2006). Moreover, SCM has been admitted as one of the key driver for distribution performance (Forkeret al., 1997).
Therefore, adoption and implementation of SCM have been widely admitted able to improve the distribution performance of organization (Gimenez and Ventura, 2005). However, there are failures on Logistic management implementation, when companies involved could not achieve the integration level as expected (Fawcett and Bixby Cooper, 2001; Fawcett and Magnan, 2002). Various researches show that SCM implications to performance depend on various factors that are generally classified as demand uncertainty, supply uncertainty and technological uncertainty (Fynes et al., 2004; Liao and Tu, 2008). Therefore, it is important to develop responsiveness, which is the ability of supply chain to rapidly respond to market change and customers demand (Holweg, 2005).

According to (Harland et al., 1999) The SCM is used not only to explain the logistic activities and related planning and controlling material and information flows among supply chain partners, but also to describe strategic inter-organization issues. In general, the SCM strategy is distinguished into two types, namely: Lean, cost, efficiency driven supply chain; and (2) agile, fast, service-driven supply chain. Both types are early response to dynamically competitive environment, so that companies need to use supply chain excellences as way to win the market competition. Lean supply chain is the companies’ first response when the market competition is getting tight, where their focus are on saving and eliminating waste in the supply chain, start from production until delivery (Womack et al., 2009). On the other hand, agile supply chain emphasizes more on flexibility and fast response to unpredictable changes, particularly market and customers demand changes (Christopher, 2000).
Statement of the Problem

The Ministry of Agriculture is conscious of the importance of the agriculture sector to the national economy and the livelihood of the Kenyan people and it has set itself to make the sector vibrant. According to (Herko, 2009) There is competition among suppliers and middlemen for distribution which in turn increases the market power of intermediaries. Most of the roads are impassable affecting the smooth access to market and making it difficult for farmers to transport their produce (Dorward and Chirwa, 2010). Lack of proper inventory management has greatly affected the distribution of farm products. This has often led to either overstocking or stock outs (Minot and Benson, 2012). As viewed by (Africa progress report, 2004) many African farmers still use methods handed from generation to generation, working their lands or grazing their animals much as their ancestors have done for millennia.(www.africaw.com)Lack of information remains number one problem facing most small scale farmers in Africa today and most miss out on new and improved methods of farming.

European Journal of Logistics Purchasing and Supply Chain Management (March, 2014) the West African Institute for Supply Chain Management (WAISCL), it was contended that “African countries are suffering largely due to the non-application of the principles of supply chain management practices to business activities. Failure in agricultural productivity in Africa can be found in both on-farm and off farm sectors of food system. According to a research done by (AGRA, 2011) on the case study on effects of small holder farmer yields in Africa, most farmers in Kenya practice small scale farming. Seed production and marketing were liberalized through the Ministry of Agriculture’s Seed and Plant Varieties Act Cap 326, allowing private seed companies to cover all stages of the seed value chain. In Tanzania due to inefficiencies in the seed sector, the country at times imports
emergency seed in times of drought and other climatic disasters. The problem is further confounded by lack of adequate agricultural land with most small holder farms spread throughout the rural areas. (KIPPRA, 2012), stated that the main problems farmers in Kenya face were competition (35%), low sales (23%), seeds that do not sell fast enough (15%), high transportation costs, and inappropriate packaging (7.7%). High supply prices and competition were the greatest constraints. While traders viewed competition as a constraint, society could view it as an opportunity. Beneficial impacts are expected to flow to farmers from the use of improved seeds through increased efficiency, lower costs of acquiring and providing seed, and lower prices paid by farmers.

The typical logistic from the field to the local/regional markets or the processing plant involves a series of intermediary means of transportation as well as, so called, middlemen. Despite the extent of documented studies on transport performance there is limited evidence of studies on logistic management on its influence on distribution performance in Kenya. In view of this a dedicated study is required to establish the influence of logistic management on distribution performance in Kenya.

**Literature Review**

Warehouse software ensures increased operational efficiencies, optimized supply chains and increased productivity (Wong et al, 2009). Our WMS software takes all warehouse requirements into account, offering you a streamlined solution which can be customized to suit your needs and ensure competitiveness. Efficient data management in a warehouse is crucial. Firms with good order processing system gains a competitive advantage over those that do not have the supply chain capabilities in place or the ability to manage them. Firms who understand their demand recognize stock out costs and carry appropriate levels of inventory are ultimately better able to effectively manage inventory and provide the desired service level to customers (Dolley, 2005).
The success of aligning a supply chain to attain these characteristics depends largely on the use of efficient communication and information technology. Communication between supply chain members requires that relevant information is transferred from its point of inception to the next point(s) of use. (Maurer, 2011) also noted that the transfer of information entails an efficient flow of information between systems, and humans and between humans, which is directly associated with the effective interoperability between the various entities handling the relevant information.

An economical transportation network actually begins with a shift in attitude. Businesses are often trapped in the traditional view that transportation is a necessary evil – an inevitable source of cost and risk. And who can blame them? Transport is by far the largest component of the cost structure of a business’ logistics. According to sector research (Chang, 1998), transport accounts for as much as 30% of the total cost of logistics operations – almost as much as warehousing and Inventory together.

According to (Minot & Benson, 2009) the scope of inventory management concerns the fine lines between replenishment lead time, carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, available physical space for inventory, quality management, replenishment, returns and defective goods, and demand forecasting. Balancing these competing requirements leads to optimal inventory levels, which is an on-going process as the business needs shift and react to the wider environment.
Distribution Performance

According to (Abrahamsson, 2003), distribution can be used to achieve a competitive edge, having noticed that the most successful companies with respect to growth and profitability are well integrated to their supply chains. (Peinado, 2011) noted that the rush for differentiation based on better distribution performance in recent years has increased the level of details and the complexity involved in any distribution process. This calls for new shareable metrics to be developed in order to assess the actual effectiveness of a company’s effort to ensure delivery of its products to customers at the right time, quantity and quality.

(Savitskie, 2003) noted that logistics is becoming increasingly important to organizations around the globe. In the past, the logistics function was often viewed as a cost centre. Today managers are elevating logistics to a strategic role in the organizations. Information usage can improve the performance of many logistics tasks such as distribution network design; demand forecasting, transportation management and inventory management. He notes that information and communication technology improves the visibility of the distribution activities. Better information enables easier coordination of supply with demand. This means that the distribution function operates more effective product handling, inventory storage efficiency and shipping economies of scale.

The Empirical Review

Trade logistics is not only about how well the country is connected to global markets, trade and transport facilitation policies to improve this connection. It is crucial to look at the entire supply chain and the links to the original producer, especially for agricultural or horticultural exports. Indeed the rural farmer’s revenue is diminished not only by the costs of international logistics but
also by those of the local logistics to/from the processing plant or the collection center (Batt, P.J. 2005). Typically the inland transportation along the international corridor is the costliest leg in the export or import chain. However, in some developing countries the local logistics to get to the corridor may capture a substantial part of the margin, comparable to corridor transport, although the distances are much shorter. This situation results from the combination of failures, infrastructure, availability of transportation, organization.

In Kenya, knowledge of logistics patterns and costs at the local level is available through various recent studies. As part of the current work, a rural logistics chain study was carried out in two districts: Kisumu and Nyandarua. The objective of the study was to describe how cash crops and subsistence crops go from the farmer’s field to the final customers (local market or exporting firm) and to provide a cost analysis for each step in the logistics chain (Chirwa, E. 2009).

The main information source for this study was interviews with farmers, local transport service providers, intermediaries, regional transporter and farmers associations or cooperative organizations. The typical supply chain from the field to the local/regional markets or the processing plant involves a series of intermediary means of transportation as well as, so called, middlemen (Chirwa, E. 2009). The middlemen are in fact brokers who own the motorized means of transportation or can easily charter them. There are traditionally at least two levels of intermediation. The farmer uses non motorized means of transportation (his bicycle, a rented donkey cart) to reach over a few kilometers to the village broker.

In most cases farmers sell the produce to middlemen and have very little bargaining power. Even if they bring the produce to the market, the middlemen arrange for the final sale. The study found that in the case of coffee the farmers did not know the price before actually reaching Kisumu. The impact of distance and accessibility is in a sense indirect, the more distant the farmer from the
market, the more to asymmetry of information and the more margin is eroded by brokers. Large commercial organizations dealing directly with the farmers exist in Kenya and are more favorable to farmers (Chirwa.E,2009). They can also provide other services to the farmers in order to organize their logistics or meet standards. But their extension is limited and their supply areas remain close to Nairobi, where those organizations are based.

All the past researchers focused on the influence of Logistic management on distribution performance of farm inputs in general but the information obtained failed to cover much of the areas under concern.

Research Methodology

A descriptive research design was used in this study. The study targeted 220 staffs in operation department in Kenya Associations. A proportionate sample size of approximate 55 respondents which is 25% of the population was selected using a simple stratified random sampling technique from the identified sample. The researcher collected both primary and secondary data during the research. Primary data was collected using questionnaires from the employees of Kenya Farmers Association. The questionnaire contained both structured and unstructured questions. Quantitative data from the questionnaires was analyzed by employing descriptive statistics and inferential analysis using statistical package for social science (SPSS). Distribution performance was regressed against four variables of intellectual capital namely (Order processing, Information flow, Transport management, Inventory management).

Research Findings

Majority of the respondents (52%) indicated that distribution costs constituted 20-40% of the sales turnover. (Anderson, 2009) noted that distribution costs for cargo transportation industry
account for more than sixty percent in Europe but agrees that half of the sales income in an organization is spent on distribution. Majority (69%) of the respondents indicated that distribution performance impacted profitability of the organization to a very large extent. From the findings it was noted that the organization has an electronic system in place to support Order processing and alsoInventory control improves visibility of stock held hence improving the distribution of firm product.

The study also found out that short information flow between the logistic function enables easy coordination of distribution with majority (70%) of the respondents strongly agreeing with the statement and that IT enhances materials management decisions making in the distribution management. This agrees with (Maurer, 2011) who noted that the transfer of information entails an efficient flow of information between systems and humans and between humans, which is directly associated with the effective interoperability between the various entities handling the relevant information. The realization of interoperability will mean a faster information flow and, thus, an effective decision-making process.

Also noted was that inventory management system improves inventory control by providing greater visibility of stock held. This is shown by the finding from the study where, 30% strongly agreed with the findings. This agrees with (Minot & Benson, 2009) who stated that inventory management concerns the fine lines between replenishment lead time, carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, available physical space for inventory, quality management, replenishment, returns and defective goods, and demand forecasting. Balancing these competing requirements leads to optimal inventory levels, which is an on-going process as the business needs shift and react to the wider environment.
The study also finds out that tracking system improves distribution performance. This finding agrees with the study done by (Chen & Paulra, 2004) who stated that Fleet Security and Control includes security of the vehicle while stopped or not in operation and the ability to safely disable a vehicle while in operation. This allows the fleet manager to recover stolen or rogue vehicles while reducing the chance of lost or stolen cargo. In addition, Fleet Security and Control to a fleet management system gives a fleet card manager preventative measures to address cargo damage and loss.

**Regression Analysis**

In addition, the researcher conducted a linear multiple regression analysis so as to test the relationship between the independent variables on total quality management. The researcher applied the statistical package for social sciences (SPSS) to code, enter and compute the measurements of the multiple regressions for the study.

**Table 1 Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.957</td>
<td>.915</td>
<td>.879</td>
<td>.55499</td>
</tr>
</tbody>
</table>

a. Predictors: (constant), Order processing, Information flow, Transport management and Inventory Management.

Coefficient of determination explains the extent to which changes in the dependent variable can
be explained by the change in the independent variables or the percentage of variation in the dependent variable. The four independent variables that were studied, explain 87.9% of the distribution performance in Kenya as represented by adjusted R square. This therefore means that other variables not studied in this research contribute 12.1% of the logistics management on distribution performance in Kenya. Therefore, further research should be conducted to investigate the other variables and factors i.e. (12.1%) that influence logistics performance in Kenya.

**Table 2: Regression Coefficient**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>5.064</td>
<td>3.061</td>
<td>1.652</td>
<td>.104</td>
</tr>
<tr>
<td>Order processing</td>
<td>0.153</td>
<td>0.073</td>
<td>0.204</td>
<td>2.221</td>
</tr>
<tr>
<td>Information flow</td>
<td>0.293</td>
<td>0.079</td>
<td>0.623</td>
<td>5.344</td>
</tr>
<tr>
<td>Transport management</td>
<td>0.308</td>
<td>0.058</td>
<td>0.375</td>
<td>3.063</td>
</tr>
<tr>
<td>Inventory management</td>
<td>0.173</td>
<td>0.039</td>
<td>0.472</td>
<td>5.328</td>
</tr>
</tbody>
</table>

a. Dependent Variable: logistics performance

As per the SPSS generated coefficient table 4.16, the equation \( Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon \) becomes:

\[
Y = 0.153X_1 + 0.293X_2 + 0.308X_3 + 0.173X_4 + 5.064
\]

Where \( Y \) is the dependent variable i.e. distribution performance, \( X_1 \) is Order processing, \( X_2 \) is Information flow, \( X_3 \) is transport management and \( X_4 \) is assessment and Inventory Management.
The possible value of Y when all independent variables are equal to zero is 5.064. The data findings analyzed also showed that taking all other independent variables at zero, a unit increase in Order processing will lead to a 0.153 increase in distribution performance; this means that there is a significant relationship between Order processing and distribution performance. The $P$-value was 0.030 and thus the relationship was significant. A unit increase in Information flow will lead to a 0.293 increase in distribution performance; this means there is a significant relationship between Information flow and logistics performance. The $P$-value was 0.000 and thus the relationship was significant. A unit increase in inventory management system will lead to a 0.308 increase in distribution performance; this means that there is a significant relationship between transport management and distribution performance. The $P$-value was 0.003 and thus the relationship was significant. Lastly, a unit Inventory management will lead to a 0.173 increase in distribution performance; this means there is a significant relationship between Inventory Management and distribution performance in Kenya. The $P$-value was 0.000 and thus the relationship was significant. This infers that transport management influences the distribution performance most followed by information flow, Inventory management and finally order processing.

**Conclusion**

From the findings the study concludes that transport management influences the distribution performance in Kenya farmers association, this is because transport management is by far the largest component of the cost structure of a business’ logistics. Information flow is also important because it helps organizations to synchronize its distribution operations. Inventory Management has also resulted to reduced carrying costs of inventory, proper asset management, increased
inventory forecasting, inventory valuation, inventory visibility hence good future inventory price.

Further, the study concludes that order processing has a direct influence because the Firms who understand their demand recognize stock out costs and carry appropriate levels of inventory are ultimately better able to effectively manage inventory and provide the desired service level to customers.

**Recommendations**

From the summary and conclusions, the study recommends that top management should remain committed to effective and efficient logistic management more so in having good transport management systems in place.

The study also recommends that Kenya farmers association members needs some training in area of logistic management. This will give them knowledge and skills on running their organizations.

The study further recommends that research be done on other variables that can be used to determine the distribution performance. This is because the variables used only measure distribution performance up to 87.9% as per the adjusted R squared.

**REFERENCES**


