



**INFLUENCE OF PROCESS MANAGEMENT PRACTICES ON SUPPLY CHAIN PERFORMANCE OF THE LARGE MANUFACTURING FIRMS IN KENYA**

**PERRIS WAMBUI CHEGE, DR. PATRICK KARANJA NGUGI, DR. JOHN KARANJA NGUGI, CALEB. C. KIRUI**

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<sup>1\*</sup> Perris Wambui Chege, <sup>2</sup> Dr. Patrick Karanja Ngugi, <sup>3</sup> Dr. John Karanja Ngugi, <sup>4</sup> Caleb. C. kirui

<sup>1\*</sup> Jomo Kenyatta University of Agriculture & Technology (JKUAT), Nairobi, Kenya

<sup>2</sup> Jomo Kenyatta University of Agriculture & Technology (JKUAT), Nairobi, Kenya

<sup>3</sup> Kenyatta University (KU), Nairobi, Kenya

<sup>4</sup> Kenyatta University (KU), Nairobi, Kenya

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**ABSTRACT**

*The purpose of this study was to present the relationship between process management (PM) practices and supply chain performance (SCP) of the large manufacturing firms in Kenya. Cross sectional–descriptive research designs were used to conduct this study. The target population was 499 firms. Stratified sampling was used to arrive at a representative sample of 200 firms whereby a response rate of 72 percent was acquired. A pilot study was conducted to test validity and reliability of the questionnaire. The instrument attained cronbach alpha above 0.7 which was considered acceptable for the study. A multiple regression model was used to analyze the hypothesized relationships between variables while content analysis was used to analyze qualitative data. The results indicated that process management practices had a positive and significant effect on supply chain performance of large manufacturing firms in Kenya. Therefore the study recommends that manufacturing firms in Kenya should employ PM practices that indentify cost drivers, reduce wastes, embrace teamwork in process decision making within the firm. Additionally the study recommends that further research is required to establish factors that may on the relationship between PM practices and SCP.*

**Key Words:**

Process management, supply chain performance

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## INTRODUCTION

Process Management is defined as all efforts in an organization to analyze and continually improve fundamental activities such as manufacturing, marketing, communications and other major elements of company's operations ( Peter, 2011). A business process is a complete, dynamically coordinated set of activities or logically related tasks that must be performed to deliver value to customers or to fulfill other strategic goals (Strnadl, 2012).

The changing economic environment has led to an increasing interest in improving organizational business processes to enhance performance (McCormack et al., 2010). An effective value strategy approach takes an organization identifies the core competencies necessary to compete and to produce and deliver customer value expectations and to coordinate the value production process ( David, 2011). Peter *et al*, (2010) indicated that Value surrounds the movement of resources through the transaction process. According to George (2013) a value stream map takes into account not only the activity of the product, but also the management and information systems that support the basic process as well. Alignment of People, Process, and Products are essential for long-term success.

In the modern world competition is no longer between organizations, but among supply chains ('SCs'). Effective supply chain management ('SCM') has therefore become a potentially valuable way of securing a competitive advantage and improving organizational performance (Peter, Kevin, Marcos & Marcelo 2010). The degree to which a firm's supply chain has been transformed into a value chain determines the degree of success of the firm in terms of profitability. Firm's whose supply chains are just supply chains are not achieving their potential to add value for their customers and therefore financially underperform other firms who

have made the transformation from supply chain to value chain (Rlaph & Thomas, 2014).

Supply chain performance measurement is the process of qualifying the efficiency and effectiveness of the supply chain (ilkka, 2012). Effective supply chain management (SCM) has been associated with a variety of advantages including increased customer value, increased profitability, reduced cycle times and average inventory levels and even better product design (William et al., 2010). Supply Chain Management activities are extremely influential in company profitability whereby a 1% reduction in SCM costs could represent a 12% profit improvement. That's a 12 to 1 relationship in cause and effect terms (George, 2013).

## RESEARCH METHODOLOGY

This study adopted a mixed research design of cross-sectional research design and descriptive survey design. According to (KAM, 2014), there are 499 large manufacturing companies operating in Nairobi where 80% of their members are based. The large scale manufacturing companies were indentified for this study because as Awino (2011) indicated, these firms are likely to exhibit elaborate SCM philosophy and make use of supply chain best practices compared to their small or medium sized counterparts. The 499 large scale manufacturing companies represented the total population for this study. The study used a sample size of 200 large manufacturing firms which comprised of 40% of the population. Descriptive statistics were used to describe the data while multiple regression analysis was used generate a weighted estimation equation that could be used to predict values (Hair, 2011; Cooper & Schindler, 2011).

Chi-square test of independence was done to establish existence of relationship. Factor analysis was conducted on all constructs to determine the ones to be regressed against the dependent variable. The adjusted coefficient of determination

(R<sup>2</sup>) was used to indicate the percentage of variability of the variables that was accounted for by the factors under analysis. This was followed by determination of standardization beta ( $\beta$ ) coefficient which indicated the direction (+ or -) and the magnitude of the influence as well as compare the relative contribution of each independent variable on performance (Hair, 2011).

## RESEARCH FINDINGS AND DISCUSSIONS

Out of the 200 questionnaires distributed, 142 were correctly filled and returned which represents a response rate of 71 percent. According to Kamel and Lloyd (2015) response rate of above 50% in business management research should be considered good. The study results revealed that 74.2 percent of the manufacturing firms in Kenya have been in operation for more than 10 years. This means that most firms understood the dynamics of operations in the Kenyan manufacturing sector.

### Descriptive statistics on process management practices in large manufacturing firms in Kenya

The respondents were required to indicate the practices they employ in their organizations in relation to process management in a scale of 1 to 5 arranged in order of best practice. The overall aggregate mean for this section stood at 3.6217 and a standard deviation of 0.6352. This meant that the respondents rated their practices in process management as above average. The results indicate that the management of the organizations makes decisions regarding processes throughout the entire operations in the organization with a mean of 3.31 and a standard deviation=0.866. The results also show that the main reason for documenting core processes in the organization was to make work easier at a mean of 3.76 and a standard deviation of 1.008. Results also show that the performance of the organization in managing data flow through the manufacturing process is average at a mean of 3.84

and a standard deviation of 0.950. The respondents regarded real time visibility between manufacturing operations and customer orders as average with a mean=3.58 and a standard deviation of 0.909. Also results show that quality testing and adherence of the manufacturing process is mostly done at the beginning of the process with a mean of 3.65 and a standard deviation 1.609.

This results negates the views of Ponsignon., *et al* (2013) whose findings suggested that 'remove non-value-adding tasks' and 're-sequence tasks' can be described as foundational principles of process improvement and that they are universally applicable. In the Kenyan large manufacturing firms set up most PM practices are driven by motives of making work easier or for certification purposes as opposed to identification of cost drivers. However Gautam., *et al* (2004) observed that a firm may excel in some of its business processes, be only average in others, and be below average in still others. Additionally most respondents indicated that management is the one that makes decisions regarding processes throughout the entire operations. While this may not necessarily be the best practice this findings are in agreement with Richard (2012) research that provided empirical evidence that getting strategic objectives aligned with business processes, demonstrate executive commitment and empowers employee. The implications for manager in this research were that when an organization seeks to sustain their competitive advantage, the process alignment which includes executive Commitment and employee empowerment, should be considered.

### Hypotheses testing

The hypothesis to test for this specific objective was H<sub>02</sub>: There is no significant relationship between process management practices and supply chain performance of the large manufacturing firms in Kenya. Table 1 shows the linear regression model R<sup>2</sup>= 0.480 which means that 48% change of supply

chain performance can be explained by a unit change of PM practices. Further test on ANOVA shows that the significance of the F-statistic (88.462) is less than 0.05 since  $p=0.00$ . Further the Constant  $\alpha = -0.155$  means that if the independent variable, PM practices is held constant then there will be a negative supply chain performance by 0.155. The regression coefficient for PM practices was positive and significant ( $\beta = 0.528$ ) with a  $t$ -value=9.405 ( $p$ -value<0.001) implying that for every 1 unit increase in PM practices supply chain performance is predicted to increase by 0.528 units and therefore  $H_0$  was rejected. On the basis of these statistics, the study concludes that there is significant positive relationship between PM

practices and supply chain performance of large manufacturing firms in Kenya. Therefore, SCP can be predicted using PM practices in the following equation.

$$Y = \beta_0 + \beta_1 X + e$$

$$Y = 0.528X - 0.155$$

These findings are supported by the statements most organizations gave that indicated practice of relatively good PM practices with the highest mean score of 3.6217. These findings are in conformity with other studies, for example, Ugur & Erman (2013), Ponsignon, Maull & Smart (2013), and Wajahat *et al*, (2014).

**Table 1: Influence of process management Practices on Supply chain performance**

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.693 <sup>a</sup>	.480	.474	.50182

a. Predictors: (Constant), process management

ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	22.277	1	22.277	88.462	.000 <sup>b</sup>
Residual	24.175	96	.252		
Total	46.452	97			

a. Dependent Variable: supply chain performance

b. Predictors: (Constant), process management

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.155	.051		-3.056	.003
process management	.528	.056	.693	9.405	.000

a. Dependent Variable: supply chain performance

## **CONCLUSIONS AND RECOMMENDATIONS**

It is noted that most PM practices are driven by motives of making work easier or for certification purposes as opposed to identification of cost drivers which is counterproductive. The study also concludes that large manufacturing firms in Kenya have put a lot of emphasis on process improvement, improved quality standards through certification, supervision, training, research and improved technology thus very high levels in investment exhibited. This findings support the conclusion that process management has the highest contribution to supply chain performance of large manufacturing firms in Kenya. The study recommends that process management recommends such practices as cross functional teams in decisions regarding processes,

documentation that indentifies cost drivers in processes, enhancing data flow through the manufacturing process within the firm, adherence to production schedules, quality assurance as opposed to inspection at the end of the process and improvement of visibility between manufacturing operations and customer orders. A number of relevant directions for future research are worth noting. First the selection of variables included in the conceptual framework is not exhaustive. Certainly other factors could provide additional insights into the influence of business value chain practices on supply chain performance. Also a research should be conducted on the factors that may intervene (moderating or mediating) in the relationship between BVCP and supply chain performance.

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