

# **KNOWLEDGE MANAGEMENT AND PERFORMANCE IN MANUFACTURING FIRMS: THE MEDIATING ROLE OF LEARNING ORGANIZATION**

**Rose Ambula** 

Lecturer, Jomo Kenyatta University of Agriculture and Technology. Nairobi, Kenya

rosevike@yahoo.com

**Anne Kariuki**

Lecturer, Karatina University. Nairobi, Kenya

w.kariuki@hotmail.com

**Shadrack Wasike**

Managing Director, Ufanisi Freighters (K) Ltd. Nairobi, Kenya

shadrack.wasike@gmail.com

## **Abstract**

*A review of empirical literature demonstrates the link between learning organization and firm performance. However, mediating role of learning organization in the relationship between knowledge management and firm performance has not been established using large manufacturing firms. This study was motivated by the desire to fill this gap in knowledge. The study examined mediating role of learning organization in the relationship between knowledge management and non-financial measures of performance. The empirical results demonstrated following: (i) Influence of knowledge management on non-financial performance was statistically significant (ii) Knowledge management positively influences learning organization (iii) Learning organization is a mediator between knowledge management and non-financial performance. The results revealed that knowledge management and learning organization have a direct and significant influence on firm performance. We recommend that manufacturing firms should align knowledge management and learning organization practices to attain and sustain superior performance.*

*Keywords: Knowledge Management, Learning Organization, Non-Financial Performance, Large Manufacturing Firms*

## INTRODUCTION

The globalization of markets, the complexity of business problems and the acceleration of change require transformations in the organization design and strategic approaches (Oltra & Vivas-Lopez, 2013). Further, Yang and Chen (2009) argue that many organizations are striving to improve their efficiency and effectiveness by implementing knowledge management and organizational learning. Knowledge management can be seen as an organization's ability to share and retain knowledge resources of the firm for sustainable competitive advantage (Chuang, 2004). Learning organization can be considered as the process of improving business practices through better knowledge and understanding in a changing environment (Drejer, 2000). Yang and Chen (2009) suggest that to be successful, a firm needs to create an organizational context that integrates organization learning with knowledge management to facilitate sharing and learning.

A critical review of management literature reveals the link between learning organization and knowledge management is still unclear. Brown and Woodland (1999) argue that it is impossible for an organization to sustain competitive advantage without constantly learning and developing new knowledge. Loermans (2002) postulates that rapid change in the extant global business environment demands greater learning at organizational level. This type of learning requires new knowledge to be generated continuously and managed in a systematic way (Loermans, 2002). Fang and Wang (2006) observe that to achieve superior organizational performance, organizations need to base their actions on regular creation and integration of new knowledge and thus adopt learning organization strategies in their daily operations.

Although the relationship between knowledge management (KM) and firm performance (FP) has already been examined in previous studies, the interaction between knowledge management and learning organization (LO) and its contribution to performance has not been adequately addressed. This study aims at exploring the impact of knowledge management on firm performance. The study focuses on the mediating role of learning organization in the relationship between knowledge management and firm performance. First, the study intends to assess the influence of KM processes on FP. Secondly, the study investigates the mediating role of LO in the relationship between KM and FP.

The study focuses on the influence of knowledge management and learning organization on performance of large manufacturing firms in Kenya. Kenya's manufacturing sector has been identified as one of the key productive sectors under Vision 2030 due to its contribution to wealth creation, employment generation and poverty alleviation (Manufacturing Survey, 2012). In addition, the sector supports the country's economic development agenda through earning foreign exchange and attracting foreign direct investment (Cheruiyot, Jagongo & Owino, 2012).

This study focuses on firms registered with Kenya Association of Manufacturers (KAM). KAM membership constitutes 40 per cent of manufacturing value-added industries in Kenya and comprises of small, medium and large enterprises. Transforming manufacturing to a more vibrant and productive sector is an important part of the government's strategy towards achievement of Millennium Development Goals (MDGs). Thus, policy makers can use findings of this study to evaluate how well the sector can be leveraged through KM and LO in order to contribute to increased economic growth.

## **THEORETICAL BACKGROUND**

This study falls within the framework provided by Knowledge-Based View (KBV) and Resource-Based View (RBV). The knowledge-based view of the firm proposes that heterogeneous knowledge bases among firms and the ability to create and apply knowledge are the main determinants of performance difference (Decarolis & Deeds, 1999). Amin and Cohendet (2004) argue that knowledge is an established theoretical construct that has been proposed as a heterogeneous resource that firms value in different manifestations as a basis of competitive advantage. An organization's superior performance depends on its ability to defend, capitalize and apply knowledge that it creates (Cameli & Tishler, 2004) in combination with other resources and competences of the firm such as contextual factors and in agreement with its strategic direction (Prieto & Revilla, 2006). A similar view is shared by Grant (1996) who argues that firms exist because they are better at integrating and applying specialized knowledge than markets do.

The basic proposition of KBV is that organizations are heterogeneous entities loaded with knowledge (Hoskisson, Eden, Chung & Wright, 2000). This view considers a firm to be 'a distributive knowledge system' composed of knowledge-holding employees and the role of the firm is to coordinate the work of those employees so that they can create value for the firm (Grant, 1996). Further, Wiklund and Shepherd (2003) argue knowledge resources are particularly important to ensure competitive advantage is sustained as these resources are difficult to imitate hence the basis for sustainable differentiation. An organization exists to create, transfer and transform knowledge into competitive advantage.

The Resource-Based View (RBV) proposes that the firm's internal resources are the primary predictors of superior performance (Wernerfelt, 1984). Barney (1991) suggests that internal firm resources which are valuable, rare, inimitable and non-substitutable can provide sources of competitive advantage. The major contribution of the RBV is the idea that firms should focus attention on developing internal assets and processes (Grant, 1996). Learning organization comprises characteristics, principles and systems of an organization that learns

collectively which leads to increased firm performance. The learning organization concept is seen as a resource-oriented approach that is based on the ability of the organization to turn standard resources that are available to all into competences which are unique and cannot be easily copied by competitors (Karash, 2002). This study proposes that a system of learning practices can lead to increased firm performance.

The RBV of the firm focuses on resources and capabilities within the firm to explain the profit and value of the organization (Wernerfelt, 1984; Barney, 1991; Grant, 1996). Barney (1991) proposes that organizations are heterogeneous entities characterized by their particular and unique resource bases. According to this view, the firm presents an explanation for heterogeneous competition based on the assumption that close competitors differ greatly in their resources and capabilities, which determine their capacity to generate profit (Amit & Shoemaker, 1993). Considering a strategic perspective of RBV of the firm, the organization is a collection of unique competencies and capabilities influencing its evolution and strategic growth options (Dierickx & Cool, 1989; Barney, 1991). The resources are the basis of this theory and thus explain the differences in performance between firms. As a result, firms that possess certain competitive advantages obtain higher returns. This study proposed that the interaction of knowledge management and learning organization and its contribution to firm performance is greater than the individual influence of predictor variables, thus lending support to the basic assumption of RBV. Consistent with Wright et al. (2001) proposition, a synergistic effect rather than a set of independent practices leads to competitive advantage.

### **Knowledge Management**

Knowledge management is the process of capturing the collective expertise and intelligence in an organization and using them to foster innovation through continued organizational learning (Davernport et al. 1998). Effective knowledge management allows knowledge sharing and provides easy access to knowledge, know how, experience and expertise (Gloet & Terziovski, 2004). In addition, Darroch and McNaughton (2002) observe that knowledge management facilitates the learning process in organizations. Hansen, Nohria and Tierney (1999) argue that as the foundation of industrialized economies has shifted from natural resources to intellectual assets, executives have been compelled to examine the knowledge underlying their business and how that knowledge is used. To innovate successfully, firms must create knowledge faster than rivals (Teece & Pisano, 1997) and rapidly translate new knowledge into new products (Grant, 1996).

Successful knowledge management is dependent on a well-functioning human resource management and the employees' perceived behavior in knowledge creation, knowledge sharing and knowledge application (Lord & Farrington, 2006). Nonaka and Takeuchi, (1995) argue that appropriate human resource management system is one of the critical factors for effective knowledge management. As proposed by Svetlik and Stavrou- Costea (2007) human resource management practices must be aligned with knowledge management practices to enhance firm performance. Further, Kuo (2011) observed that successful corporate knowledge management comes from the support of top management and the fundamental investment of human resource managers. This implies superior performance depends on how firms utilize the knowledge organizational members possess. Organizations acquire knowledge not only through their own employees but also through formal and informal environmental scanning (Huber, 1991).

Drawing from Darroch and McNaughton (2002) knowledge management consists of three processes knowledge acquisition, knowledge application and knowledge sharing. Knowledge acquisition is related to using existing knowledge or capturing new knowledge which enhances an organization's ability to realize its goals as well as increase organizational learning. In order to effectively acquire knowledge, firms need to rely on availability of expertise among employees in the firm. Firms can also acquire knowledge from external sources by hiring people possessing the required knowledge or by purchasing knowledge assets such as patents, research documents or other intelligence material (Wong & Aspinwall, 2004). Knowledge application refers to an organization's timely response to technological change, by utilizing the knowledge and technology generated into new products and services (Song, Bij & Weggeman, 2005). Knowledge sharing is attributed to a social interaction culture involving the exchange of employee knowledge, experience and skills within the organization (Lin, 2007).

### **Learning Organization**

The term learning organization was first proposed by Garratt in 1987 to describe organizations that experimented with new ways of conducting business in order to survive in turbulent highly competitive markets (Ortenblad, 2004). Extensive literature review on learning organization provides various definitions. Jamali et al. (2009) observe that there is lack of consensus among researchers and practitioners with regard to a common definition of learning organization and ambiguity still exists regarding what a learning organization is or should be. In addition, Matlay (1997) argues that the definitions appear complementary rather than fundamentally original or conceptually different. This provides overwhelming but unclear information to both researchers and practitioners.

Senge (1990) defined learning organizations as organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free and where people are continually learning to learn together. Learning in an environment of change positions people as a source of distinctive competence and makes the source of sustainable competitive advantage (Pedler, Burgoyne and Boydell, 1991; Rowden, 2001), a position that is supported by proponents of resource based view (Barney, 1991; Grant, 1991, Karash, 2002). Huber (1991) and Garvin (1993) linked learning to the use of information in modifying the behavior of the organization to reflect new knowledge and insights.

A central theme of the learning organization literature is that learning is intentional and that the organization through its structures, systems and culture is designed to learn. In this regard, scholars have identified a variety of tools for measuring and diagnosing learning organizations. Pedler et al. (1991) developed the learning organization questionnaire which comprised eleven dimensions: a learning approach to strategy, participative policy making, informing, formative accounting and control, internal exchange, reward flexibility, enabling structures, boundary workers, inter-company learning, a learning climate and self-development opportunities. Garvin (1993) conceptualized learning as comprising the following constructs: systematic problem solving, experimentation with new approaches, learning from organization's own experience and past history, learning from experiences and best practices of others, transferring knowledge quickly and efficiently throughout the organization. Senge (1994) theoretical framework consists of five disciplines: personal mastery, mental models, shared vision, team learning and systems thinking. The disciplines can be used as valuable guidelines in working towards learning organization status, though the observable characteristics of such organizations are not clearly identified (Yang et al., 2004).

A critical review of the diagnostic tools in terms of scope, depth and validity suggests that the Dimensions of the Learning Organization Questionnaire (DLOQ) developed by Yang et al. (2004) meets the three criteria. This tool consists of seven dimensions: continuous learning, dialogue and inquiry, team learning, embedded systems, empowerment, system connectivity and strategic leadership. The instrument is intended to gauge the perceptions of employees regarding the seven constructs at a particular point in time (Jamali et al, 2009). A clear and inclusive definition of the construct of learning organization is reflected in this tool. Learning organization is defined from an organizational culture perspective, thus provides adequate measurement domains for scale constructs. The current study focuses on learning organization practices based on the work of Yang et al. (2004).

## **Firm Performance**

Firm performance refers to the extent to which an organization is able to meet its objectives and mission. Torrington, Hall and Taylor (2008) attribute organizational performance to bottom line financial performance, doing better than competitors, maximum organization effectiveness and achieving specific organization objectives. Mitchell (2002) argues that organizational performance is affected by three factors namely: organization motivation to achieve performance objectives, influence and impact of the external environment and organization capacity to achieve desired performance. Measurement of performance is an essential indicator of the effectiveness of the firm. Firm performance needs to be assessed to highlight strengths and improvement opportunities and reduce gaps (Khadra & Rawabdeh, 2006).

Performance measurement incorporates quantitative (objective) as well as qualitative (subjective) measures. Quantitative measures focus on end results such as sales turnover and return on investment while qualitative measures focus on the process by which end results are achieved such as product or service quality, customer satisfaction, employee satisfaction and commitment (Venkatraman & Ramannujam, 1986). Ahmed, Lim and Zairi (1999) suggest that effective measurement systems are those which are balanced, integrated and designed to highlight critical inputs, outputs and process variables. In addition, a valued measurement system incorporates financial and operational measures such a balanced scorecard approach (Hitt, 1996). The Balanced Scorecard Card (BSC) provides a framework for selecting multiple performance indicators that supplement traditional financial measures with qualitative measures such as customer perspective, internal business process and learning and growth. This study focused on non-financial measures such as customer perspective, internal business operations and learning and growth.

## **Knowledge Management and Firm Performance**

Knowledge management is purported to be essential to sustained competitive advantage and continued business success. (Drucker, 1998; Davenport & Prusak, 1998). It is widely accepted that firms which consciously invest in the creation of new knowledge through research and development or through informal learning process tend to do better than those that depend on knowledge created by others (Boisot, 1998). This highlights the importance of the creation of new knowledge as a critical component of an organization's ability to learn and adapt. Spender (1992) postulates that firms are not only engaged in knowledge creation but also in knowledge application. The distinction between the two processes is demonstrated in Demsetz (1991) observation that efficiency in knowledge acquisition requires that individuals specialize in



specific areas of knowledge, while application of knowledge to produce goods and services requires bringing together many areas of specialization.

Empirical studies suggest that knowledge management and performance are positively related. Lee and Lee (2007) confirmed there is empirical relationship between knowledge management capabilities and organizational performance. Kagiri (2008) examined the influence of knowledge management strategy and organizational competence on competitiveness of Kenya's commercial book publishing industry. The study revealed a strong and significant relationship between knowledge management strategy and organization competence and firm competitiveness. Daud and Wan Yusoff (2010) study of SMEs in Malaysia indicated that knowledge management processes positively influence performance. Thus, the study hypothesized that KM influences firm performance.

H<sub>1</sub>: Knowledge management influences non-financial performance

### **Knowledge Management and Learning Organization**

Extant literature on knowledge management and learning organization has explored the role of organizations in the acquisition, processing, storage and application of knowledge (Argyris & Schon, 1978). The main focus of this literature is on the acquisition of information by organizations (Grant, 1996). Spender (1992) postulates that firms are not only engaged in knowledge creation but also in knowledge application. The distinction between the two processes is demonstrated in Demsetz (1991) observation that efficiency in knowledge acquisition requires that individuals specialize in specific areas of knowledge, while application of knowledge to produce goods and services requires bringing together many areas of specialization.

Learning organization and knowledge management are said to be closely-linked and dependent on each other (Loermans, 2002). A study by Lemon and Sahota (2004) revealed a positive relationship between learning and knowledge management capability. However, few studies have been done focusing on these two areas of relationship especially in the manufacturing sector. The changes in the global economy require organizations to take a more active role in developing knowledge management and learning organization initiatives (Chinowsky & Carrilo, 2007). Watkins and Marsick (1996) suggest that to improve performance, organizations need to focus on continuous learning and use of knowledge which can serve as critical factors to success in facilitating individual, team and organizational learning leading to continuous improvement in business operations.

Li-An Ho (2008) examined the link between learning and knowledge management and their impact on 21 Technological Companies in Taiwan. The results indicated that learning



organization and knowledge management capability have direct and significant influences on firm performance. A similar study by Kuo (2011) among employees in Electronic Industrial and Technological companies in Taiwan revealed that HRM strategies led to better organizational learning, organization innovation and knowledge management which contribute to improved organizational performance. The interaction between learning organization and knowledge management and its contribution to performance is therefore critical. Hence, we hypothesize that KM influences LO.

H<sub>2</sub>: Knowledge management positively influences learning organization

### **Knowledge Management, Learning Organization and Firm Performance**

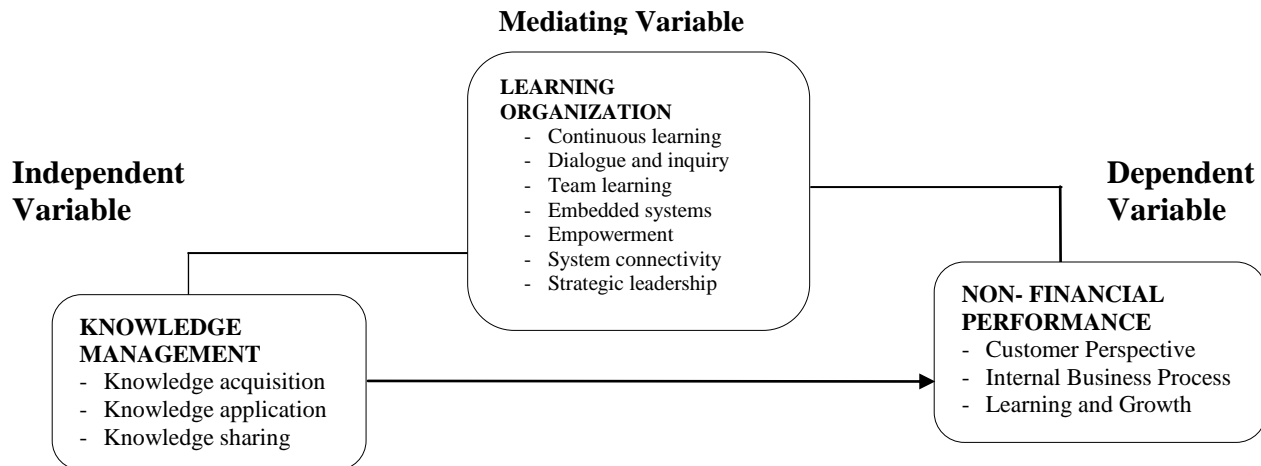
Knowledge is posited in an organization as a strategic asset which can help the firm maintain its competitive advantage in a turbulent environment (Jantunen, 2005). The researcher observes that knowledge-based assets and organizational learning capabilities are critical for a firm's innovation activities. Knowledge management aims at getting people to innovate, collaborate and make correct decisions efficiently (June, 2005). In addition, the success of organizations is associated with the organization and individual ability to learn (Li-An Ho, 2008). Thus, learning in organizations is the key for organizations to sustain competitive advantage. According to Pedler et al. (1991) learning organization enables the learning of its members in such a way that it creates positively valued outcomes such as innovation, efficiency, better alignment with the environment and competitive advantage. Senge (1990) suggests that the ability of an organization to learn faster than its competitors may be the only means of achieving competitive advantage.

According to Sarin and McDermott (2005) learning involves making use of information. By relying on experience, firms use information they have acquired, disseminated and integrated. Learning helps reduce transaction costs, support decisions and shape behavior (Sarin & McDermott, 2005). Fiol and Lyles (1995) suggest learning provides a link between different functions, helps frame problems or opportunities and guides decision formulation and implementation. In this regard, learning has been described as a fundamental organization capability because it facilitates various business processes (Day, 1994) such as new product development (Madhavan & Grover, 1998). Information use associated with learning leads to detection and correction of errors and improves the likelihood of effective new product development in a firm (Argyris & Schon, 1978). Watkins and Marsick (1996) suggest that to improve performance, organizations need to focus on continuous learning and use of knowledge which can serve as critical factors to success in facilitating individual, team and

organizational learning leading to continuous improvement in business operations. We thus, hypothesize that:

H<sub>3</sub>: Learning organization mediates the relationship between knowledge management and non-financial performance.

Figure 1. Conceptual Model



The conceptual model proposed that knowledge management influences non-financial performance. This influence is not direct but through learning organization. The model further proposed that learning organization mediates the relationship between knowledge management and non-financial performance.

## METHODOLOGY

The study was conducted in 108 large manufacturing firms in Kenya. A census study of the companies was carried out since the population was not very large. Semi-structured questionnaires were used to collect data from the human resource manager, finance manager and production manager. The choice of the respondents is consistent with studies by Cabrita and Bontis (2008) who argued that organization characteristics measured were known to selected members in upper echelons, thus they were likely to provide more reliable information. The view of key informant is widely used in human resource management studies (Huselid et al. 1997; Cabrita and Bontis, 2008). The targeted respondents were deemed knowledgeable about issues under investigation for which they are directly responsible. The questionnaire consisted of five parts: A, B, C, D and E. Part A which sought information on personal and organizational details was filled by the human resource manager. In addition, the human resource manager responded to questions on learning organization (Part B), knowledge management (Part C) and

employee outcomes (Part D). Part E section one which focused on financial perspective was completed by the finance manager. Part E section two was concerned with non-financial measures of performance. The key respondent was the production manager.

Knowledge management was operationalized as knowledge acquisition, knowledge application and knowledge sharing. The measurement scale consisted of 13 items anchored on a five point Likert type scale. The three operational dimensions were adopted from Darroch and McNaughton (2002). Drawing from Yang et al. (2004) learning organization was operationalized as continuous learning, dialogue and inquiry, team learning, embedded systems, empowerment, system connectivity and strategic leadership. The measurement scale consisted of 37 items measured on a five-point likert type scale ranging from 1 = not at all to 5 = very large extent. Non-financial performance was measured using 12 items covering customer perspective, internal business process and learning and growth each consisting of 4 items.

## ANALYSIS AND RESULTS

### Knowledge Management and Non-Financial Performance

The first hypothesis was to establish the influence of knowledge management on non-financial performance. The study proposed that knowledge management has a significant influence on non-financial performance. Simple regression analysis was performed to determine this relationship. The results are presented in Table 1.

Table 1: Regression Results for the Effect of Knowledge Management on Non-Financial Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.614	.377	.368	.01590		
<b>ANOVA</b>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.010	1	.010	39.936	.000
	Residual	.017	66	.000		
	Total	.027	67			
<b>Coefficients</b>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.067	.013		5.134	.000
	Knowledge Management	.104	.016	.614	6.319	.000
Predictors: (Constant), Knowledge Management; Dependent Variable: Non- Financial Performance						

The results in Table 1 indicate that 37.7 percent of variance in non-financial performance was explained by knowledge management ( $R^2 = 0.377$ ,  $P < 0.05$ ). However, the regression did not explain 62.3 percent of variation in non-financial performance due to other factors not included in the study. The overall model was statistically significant ( $F = 39.936$ ,  $P < 0.05$ ). Equally, the beta coefficient was statistically significant ( $\beta = 0.104$ ,  $t = 6.319$ ,  $P < 0.05$ ) suggesting that one unit change in knowledge management is associated with 0.104 change in non-financial performance.

### Knowledge Management and Learning Organization

The effect of knowledge management on learning organization was tested using simple linear regression analysis. A composite index for three dimensions of knowledge management constituted the measure for independent variable while a composite index for seven dimensions of learning organization constituted the measure for dependent variable. The results are presented in Table 2

Table 2: Regression Results for the Effect of Knowledge Management on Learning Organization

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.800 <sup>a</sup>	.640	.634	.01441		
<b>ANOVA</b>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.022	1	.022	104.717	.000 <sup>a</sup>
	Residual	.012	59	.000		
	Total	.034	60			
<b>Coefficients</b>						
Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	.021	.013		1.617	.111
	Knowledge Management	.167	.016	.800	10.233	.000

a. Predictors: (Constant), Knowledge Management b. Dependent Variable: Learning Organization

The regression results in Table 2 indicate that 64 percent of variance in learning organization was explained by knowledge management ( $R^2 = 0.640$ ,  $P < 0.05$ ). The regression did not explain 36 percent of variation in learning organization which is due to other factors not included in the study. This implies that knowledge management is a strong predictor of learning organization. The overall model was statistically significant ( $F = 104.717$ ,  $P < 0.05$ ). The beta coefficients reveal

that the influence of knowledge management on learning organization was statistically significant ( $\beta=0.167$ ,  $t=10.233$ ,  $P<0.05$ ). This implies that one unit change in knowledge management is associated with 0.167 change in learning organization. The results thus provide evidence that knowledge management influences learning organization.

### Knowledge Management, Learning Organization and Non-Financial Performance

The study proposed that learning organization mediates the relationship between knowledge management and non-financial performance. Composite indices of knowledge management, learning organization and non-financial performance were computed and stepwise regression analysis performed. Learning organization consisted of seven dimensions: continuous learning, dialogue and inquiry, team learning, embedded systems, empowerment, system connectivity, and strategic leadership. Knowledge management comprised: knowledge acquisition, knowledge application and knowledge sharing. The indicators of non-financial performance included: customer perspective, internal business process, learning and growth.

A four step model was used to test for mediation. Step 1 involved testing the relationship between knowledge management and non-financial performance. Step 2 focused on the influence of knowledge management on learning organization. Step 3, testing the influence of learning organization on non-financial performance. Step 4 involved testing the influence of knowledge management on non-financial performance while controlling for mediation (learning organization). Regression results are presented in Table 3.

Table 3: Regression Results for the Mediation of Learning Organization in the Relationship between Knowledge Management and Non-Financial performance

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of the Estimate	Change Statistics				
					R <sup>2</sup> Change	F Change	df1	df2	Sig. F Change
1	.614	.377	.368	.01590					
2	.800	.640	.634	.01441					
3	.627	.394	.383	.01474	.394	37.010	1	57	.000
4	.642	.412	.391	.01465	.018	1.700	1	56	.198
ANOVA									
Model			Sum of Squares	Df	Mean Square	F	Sig.		
1	Regression		.010	1	.010	39.936	.000		
	Residual		.017	66	.000				
	Total		.027	67					
2	Regression		.022	1	.022	104.717	.000		
	Residual		.012	59	.000				
	Total		.034	60					

Table 3...

3	Regression	.008	1	.008	37.010	.000
	Residual	.012	57	.000		
	Total	.020	58			
4	Regression	.008	2	.004	19.582	.000
	Residual	.012	56	.000		
	Total	.020	58			
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1 (Constant)		.067	.013		5.134	.000
Knowledge Management		.104	.016	.614	6.319	.000
2 (Constant)		.021	.013		1.617	.111
Knowledge Management		.167	.016	.800	10.233	.000
3 (Constant)		.073	.013		5.671	.000
Learning Organization		.509	.084	.627	6.084	.000
4 (Constant)		.065	.014		4.536	.000
Learning Organization		.373	.133	.460	2.806	.007
Knowledge Management		.037	.028	.214	1.304	.198
Model 1 Predictors: Knowledge Management						
Model 2 Predictors: Knowledge Management						
Model 3 Predictors: Learning Organization						
Model 4 Predictors: Learning Organization, Knowledge Management						
Dependent Variable						
Model 1,3,4: Non- Financial Performance						
Model 2: Learning Organization						

### Step One: The Influence of Knowledge Management on Non-Financial Performance

In this step, the dependent variable (non-financial performance) was regressed on the independent variable (knowledge management). The results in model 1 indicate that 37.7 percent of variation in non-financial performance was explained by knowledge management ( $R^2=0.377$ ,  $P<0.05$ ). The influence of knowledge management on non-financial performance was statistically significant ( $F=39.936$ ,  $P<0.05$ ). Equally, the beta coefficients were statistically significant ( $\beta=0.104$ ,  $t=6.319$ ,  $P<0.05$ ). This implies that one unit change in knowledge management is associated with 0.104 change in non-financial performance. The first step in testing for mediation was met.

### Step Two: The Influence of Knowledge Management on Learning Organization

Results in model two, indicate that knowledge management accounts for 64 percent variation in learning organization ( $R^2=0.640$ ,  $P<0.05$ ).  $R^2$  changes from 0.377 in step 1 to 0.640 in step 2 ( $R^2$  change =0.263). The overall model reveals that knowledge management had a significant contribution to learning organization ( $F= 104.717$ ,  $P<0.05$ ). Further, the beta coefficients were

statistically significant ( $\beta=0.167$ ,  $t=10.233$ ,  $P<0.05$ ). This suggests that one unit change in knowledge management is associated with 0.167 change in learning organization. The second step in testing for mediation was met.

### **Step Three: The Influence of Learning Organization on Non-Financial Performance**

In model 3, 39.4 percent of variance in non-financial performance is explained by learning organization ( $R^2=0.394$ ,  $P<0.05$ ).  $R^2$  changes from 0.640 in step 2 to 0.394 in step 3 ( $R^2$  change = 0.246). The overall model was statistically significant ( $F=37.010$ ,  $P<0.05$ ). The change in F ratio ( $F$  change=37.010) at  $P<0.05$  was statistically significant. The results were further confirmed by the beta coefficients ( $\beta=0.509$ ,  $t=6.084$ ,  $P<0.05$ ) thus confirming the third step in testing for mediation.

### **Step Four: The Influence of Knowledge Management and Learning Organization on Non-Financial Performance**

The results in step four indicate that knowledge management and learning organization accounted for 41.2 percent of variation in non-financial performance ( $R^2=0.412$ ,  $P<0.05$ ).  $R^2$  changes from 0.394 in step 3 to 0.412 in step 4 ( $R^2$  change =0.018). The overall model was statistically significant ( $F=19.582$ ,  $P<0.05$ ). Notably, the influence of knowledge management as independent variable ( $\beta=0.037$ ,  $t=1.304$ ,  $P>0.05$ ) in the presence of learning organization (mediator) was insignificant. The results thus provided sufficient evidence to support the full mediation of learning organization in the relationship between knowledge management and non- financial performance.

## **DISCUSSIONS AND CONCLUSION**

The findings of the study support previous studies. A study by Lemon and Sahota (2004) revealed a positive relationship between learning and knowledge management capability. Lee and Lee (2007) confirmed there is empirical relationship between knowledge management capabilities and organizational performance. Kagiri (2008) examined the influence of knowledge management strategy and organizational competence on competitiveness of Kenya's commercial book publishing industry. The study revealed a strong and significant relationship between knowledge management strategy and organization competence and firm competitiveness. The results of a study by Li-An Ho (2008) indicated that learning and knowledge management capability have a direct and significant influence on organizational performance. A research by Daud and Wan Yusoff (2010) revealed that knowledge management processes had a significant influence on firm performance.



The significant influence of knowledge management on non-financial performance lends support to arguments by knowledge management scholars. Daud and Wan Yusoff (2010) opine that knowledge management processes have a significant relationship with firm performance. Davernport and Prusak (1998) suggest that knowledge management processes contribute to firm performance by improving job performance, leveraging core business competencies, accelerating the time to market products, reducing cycle times and enhancing product quality. Malhorta (2001) asserts that every additional unit of knowledge used effectively results in marginal increase in performance. Jantunen (2005) states that knowledge is posited in an organization as a strategic asset which can help the firm maintain its competitive advantage in a turbulent environment. The researcher observes that knowledge-based assets and organizational learning capabilities are critical for a firm's innovation activities.

In addition, the results of the study are consistent with previous empirical studies that confirm learning organization influences firm performance. Studies by Ellinger et al. (2002), Prieto and Revilla (2006); Khadra and Rawabdeh (2006) revealed a statistically significant relationship between learning organization and firm performance. Garrido and Camerero (2010) examined the relationship between learning orientation, innovation and performance of 386 British, French and Spanish firms and found a significant relationship. Li and Lu (2007) study on the applicability of the learning organization concept and its influence on firm performance in China revealed a positive relationship. Nervis, Dibella and Gould (1995) postulate that learning organizations are designed to anticipate and react to changing external and competitive environments in a positive and proactive manner. Organizations that facilitate learning are better able to respond to challenges of the external environment (Garavan & McCarthy, 2008).

The focus on the manufacturing sector in this study is driven by the fact that this sector has great potential for employment creation, provides a stimulus for growth for other sectors and offers significant opportunities for export expansion (Economic survey, 2014). However, manufacturing firms face a number of challenges which need to be addressed in order to ensure success of the sector. Expensive and often low-quality raw materials, rising labour costs, unreliable and expensive energy have led to high costs of production. In addition, the high cost of inputs as a result of poor infrastructure has led to high prices of locally manufactured products which limit their competitiveness in the regional markets thus hampering the sector's capacity utilization (Manufacturing and Industry Sector Report, 2013). Learning organization and knowledge management provide opportunities for these firms to achieve sustainable competitive advantage given the competitive environment they operate in. The choice of the two concepts is based on the fact that business enterprises are increasingly operating in knowledge-based economies where success is largely determined by the quality of information available.

Notably, knowledge management and learning organization had a strong explanatory power on non-financial performance. These results support the basic proposition of RBV that the combined effect of firm specific resources leads to superior performance because this combination cannot be easily imitated by competitors. The results further suggest that manufacturing firms can achieve competitive advantage through the alignment of learning organization and knowledge management.

## REFERENCES

- Ahmed, P., Lim, K. & Zairi, M. (1999). Measurement practice for knowledge management. *Journal of Workplace Learning: Employee Counselling Today*, 11(8), 304-11.
- Amin, A. & Cohendet, P. (2004). *Architectures of Knowledge, Firms, Capabilities and Communities*. Oxford: Oxford University press.
- Amit, R. & Shoemaker, P. J. H. (1993). Strategic assets and organizational rent. *Strategic Management Journal*, 14(1), 33-46.
- Argyris, C. & Schon, D. (1978). *Organizational learning: A theory of action perspective*, Reading: Addison Wesley.
- Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17 (1), 99-120.
- Boisot, M. (1998). *The Information Space, Knowledge Assets: Securing Competitive Advantage in the Information Economy*. New York: Oxford University Press.
- Brown, R. B. & Woodland, M. J. (1999). Managing knowledge wisely: A case of organizational behaviour. *Journal of Applied Management Studies*.
- Cabrita, R., & Bontis, N. (2008). Intellectual capital and business performance in Portuguese banking industry. *International Journal of Technology Management*, 43, 212-237.
- Carmeli, A. & Tishler, A. (2004). Relationship between intangible organizational elements and organizational performance. *Strategic Management Journal*, 25, 1257-1278.
- Cheruiyot, C. K., Jagongo, A. & Owino, E. O. (2012). Institutionalization of knowledge management in manufacturing enterprises in Kenya: A case of selected enterprises. *International Journal of Business and Social Science*, 3(10), 127-138.
- Chinowsky, P. & Carillo, P. (2007). Knowledge management to learning organization connection. *Journal of Management Engineering*, 122-130.
- Chuang, S. (2004). Resource-based perspective on knowledge management capability and competitive advantage: An empirical investigation. *Expert Systems with Applications*, 27 (3), 459-65.
- Darroch, J. & McNaughton, R. (2002). Examining the link between knowledge management practices and types of innovation. *Journal of Intellectual Capital*, 3(3), 210-222.
- Daud, S. & Wan Yusoff, W. F. (2010). Knowledge management and firm performance in SMEs: The role of social capital as a mediating variable. *Asian Academy of Management Journal*, 15(2), 135-155.
- Davenport, T. H. & Prusak, L. (1998). *Working knowledge: How organizations manage what they know*. Harvard Business Review, 1-7.
- Day, G. S. (1994). The capabilities of market-driven organizations. *Journal of Marketing*, 58, 37-52.
- Decaloris, D. M. & Deeds, D. L. (1999). The impact of stock and flows of organizational knowledge on firm performance: An empirical investigation of the biotechnology industry. *Strategic Management Journal*, 20(7), 953-968.

- Dierickx, I. & Cool, K. (1989). Assets, stock accumulation and sustainability of competitive advantage. *Management Science*, 35(9),1504-11.
- Drejer, A. (2000). Organizational learning and competence development. *The Learning Organization*, 7(4), 206-220.
- Drucker, P. (1998). The coming of the new organization. *Harvard Business Review on Knowledge Management*, 5.
- Ellinger, A., Yang, B. & Houston, S. (2002). The relationship between the learning organization concept and firms financial performance: An empirical assessment. *Human Resource Development Quarterly*,13, 5-21.
- Fang, S. C. & Wang, J. F. (2006). Effects of organizational culture and learning on manufacturing strategy selection: An empirical study. *International Journal of Management*, 23, 503-514.
- Fiol, C. M., & Lyles, M. A. (1985). Organizational learning. *Academy of Management Review*, 19, 803–813.
- Garavan, T. N. & McCarthy, A. (2008). Collective learning process and human resource development. *Advances in Developing Human Resources*, 10 (4), 451-471.
- Garrido, M. J., & Camerero, C. (2010). Assessing the impact of organizational learning and innovation on performance in cultural organizations. *International Journal of Non-Profit and Voluntary Sector Marketing*, 15(3), 215-242.
- Garvin, D. A (1993). Building a learning organization. *Harvard Business Review*. 7. 78-91.
- Grant, R. M. (1996). Prospering in dynamically competitive environment: organization capability as knowledge integration. *Organization Science*, 7 (4), 375-87.
- Hansen, M. T., Nohria, N. & Tierney, T. (1999). What's your strategy for managing knowledge. *Harvard Business Review*. 77(2), 106-116.
- Hoskisson, R. E., Eden L., Chung M. L. & Wright, M. (2000). Strategy in emerging economies. *The Academy of Management Journal*, 43(3):249-267.
- Hitt, W. (1996). The learning organization: Some reflections on organizational renewal. *Leadership and Organization Development Journal*, 16(8), 17-25.
- Huber, G. P. (1991). Organizational learning: The contributing processes and literatures. *Organization Science*, 2(1), 88-115.
- Huselid, M. A., Jackson, S. E. & Schuler, R. S. (1997). Technical and strategic human resource management effectiveness as determinants of firm performance. *Academy of Management Journal*, 40(1), 171-188.
- Jamali, D., Sidani, Y. & Zouein, C. (2009). The learning organization: tracking progress in a developing country: A comparative analysis using the DLOQ. *The learning organization*, 16(2), 103 –121.
- Jantunen, A. (2005) Knowledge-processing capabilities and innovative performance: An empirical study. *European Journal of Innovation Management*, 8, 336-49.
- June, (2005). Drivers of knowledge management in the cooperate environment. *International Journal of Information Management*. 25(3), 193-202.
- Kagiri, R. M. (2008). Knowledge Management Strategy, Organizational Competence and Competitiveness in Kenya's Commercial Book Publishing Industry. (Unpublished Ph.D Thesis). School of Business, University of Nairobi.
- Karash, R. (2002). Learning organization dialog on learning organizations. Available at: <http://world.std.com/>.
- Kenya association of manufacturers (KAM) (2012) Manufacturing survey: A survey of Kenya's manufacturing sector.
- Kenya national bureau of statistics (2014). Economic Survey. The Government Printer, Nairobi- Kenya

- Khadra, M. F. A. & Rawabdeh, I. A. (2006). An assessment of development of the learning organization concept in Jordanian industrial companies. *The Learning Organization*, 13 (5), 455-474.
- Kuo, T. (2011). How to improve organizational performance through learning and knowledge. *International Journal of Manpower*, 32, 581-603.
- Lee, Y. C. & Lee, S. K. (2007). Capability, processes and performance of knowledge management: A structural approach. *Human Factors and Ergonomics in Manufacturing*, 17(1), 21-41.
- Lemon, M. & Sahota, P. S. (2004). Organizational culture as a knowledge repository for increased innovative capacity. *Technovation*, 24, 483-98.
- Li-An Ho, (2008). What affects organizational performance? The linking of learning and knowledge management. *Industrial Management and Data Systems*, 108(9),1234-1254.
- Li, M. & Lu, X. (2007). The construct validation of learning organization and its influence upon firm performance in mainland China.
- Lin, H. (2007). Knowledge sharing and firm innovation capability: An empirical study. *International Journal of Manpower*, 28(4), 315-332.
- Loermans, J. (2002). Synergizing the learning organization and knowledge management. *Journal of Knowledge Management*. 6(3), 285-294.
- Madhavan, R., & Grover, R. (1998). From embedded knowledge to embodied knowledge: New product development as knowledge management. *Journal of Marketing*, 62(4), 1–12.
- Matlay, H. (1997) *Learning organization in context: A literature review*. London: Edexcel
- Nervis, E. C., Dibella, A. J. & Gould, J. M. (1995) Understanding learning organizations. *Sloan Management Review*, 36(2), 73-85.
- Nonaka, I. & Takeuchi, H. (1995). The knowledge creating company. *Harvard Business Review*, 69, 96-104.
- Oltra, V. & Vivas-Lopez, S. (2013). Boosting organizational learning through team-based talent management: What is the evidence from large Spanish firms. *International Journal of Human Resource Management*, 24,1853-1871.
- Ortenblad, A. (2004). The learning organization: Towards an integrated model. *The Learning Organization*, 11 (2), 129-144.
- Pedler, M., Burgoyne, J. & Boydell, T. (1991). *The learning company: A strategy for sustainable development*, London: McGraw-Hill.
- Prieto, I. M. & Revilla, E. (2006). Learning capability and business performance: A non-financial and financial assessment. *The Learning Organization*, 13 (2), 166-185.
- Rowden, R.W. (2001). The learning organization and change. *Advanced Management Journal*, 66 (3), 11-20
- Daud, S. & Wan Fadzilah, W. Y. (2010). Knowledge management and firm performance in SMEs: The role of social capital as a mediating variable. *Asian Academy of Management Journal*, 15(2), 135-155.
- Sarin, S. & McDermott, C. (2003). The effect of team leadership characteristics on learning, knowledge application and performance of cross-functional new product development teams. *Decision Sciences*, 34(4), 707-739.
- Senge, P. M. (1990). *The fifth discipline: The art and practice of learning organization*. New York: Doubleday Currency.
- Song, M., Bij, H. V. D. & Weggeman, M. (2005). Determinants of the level of knowledge application: A knowledge-based and information-processing perspective. *Journal of Product Innovation Management*, 22.430-440.
- Svetlik, I. & Stavron-Costea, E. (2007). Connecting human resource management and knowledge management. *International Journal of Manpower*, 28(3), 197-206.

- Teece, D., Pisano, G., & Shuen, A. (1997). Dynamics, capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-534.
- Torrington, D., Hall, L. & Taylor, S. (2008). *Human resource management*. England: Pearson Education Ltd.
- Venkattraman, N. & Ramannujam, V. (1986). Measurement of business performance in strategy research. *Academy of Management Review*. 11, 801-814.
- Watkins, K. E. & Marsick V. J. (1996). *In action: Creating the learning organization*. Alexandria, VA: American Society for Training and Development.
- Wenerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*. 5. 171-180.
- Wiklund, J. & Shepherd, D. (2003). Knowledge- based resources, entrepreneurial orientation and the performance of small and medium-sized businesses. *Strategic Management Journal*, 24(9), 1307-14.
- Wong, K.Y. & Aspinwall, E. (2004). Characterizing knowledge management in the small business environment. *Journal of Knowledge Management*, 8(3), 44-61.
- Wright, P. M., Dunford, B. B. & Snell, S. A. (2001). Human resources and resource-based view of the firm. *Journal of Management*, 27(6), 701-721.
- Yang, B., Watkins, K. & Marsick, V. (2004). The construct of the learning organization: dimensions, measurement and validation. *Human Resource Development Quarterly*, 15(1), 31-55.
- Yang, C. & Chen, L. (2009). On using organizational knowledge capabilities to assist organizational learning. *Springer Science Business Media*, 303- 306.