

## **Institutionalization of Knowledge Management in Manufacturing Enterprises in Kenya: A Case of Selected Enterprises**

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### **Abstract**

*In the fast changing business environment, knowledge has turn out to be the basis of every organization in creating and sustaining competitive differentiation. This study sought to examine factors that influence institutionalization of Knowledge Management (KM) in manufacturing enterprises in Kenya. A sample of 60 senior managers in the three selected manufacturing enterprises revealed that there are two critical factors that influence institutionalization of knowledge management. These factors are organizational practices and technological infrastructure. This paper concludes that the organizational practices have the highest influence and therefore when a comprehensive view is taken in instituting knowledge management practices, organizational practices be considered first and technological infrastructure second.*

**Key words:** Knowledge, Tacit knowledge, explicit knowledge, Knowledge Management, Institutionalization, manufacturing enterprise, Kenya

### **1.0 Introduction**

In the fast changing business environment, knowledge has turn out to be the basis of every organization in creating and sustaining competitive differentiation. Many organizations put forth additional efforts to meet or adjust to the pressure of their customers, players, shareholders and supervisory bodies. Consequently, business executives have embraced knowledge as one of the organization's most important asset and that its quality and availability can facilitate them to face the pressures, challenges and remain competitive. Therefore, enterprises are mounting knowledge strategies that tackle organizational development, retrenchment, amalgamation, and internal reorganization (O'Dell and Hubert, 2011). They plan to build up Knowledge Management (KM) capability to the level that they are institutionalized and embedded into their business operations and practices (Sandhawalia and Dalcher, 2011).

Knowledge is a blend of experience, insights, expertise, intuition, judgment that exist in the mind of the knower, while Knowledge management is the practice of creating, acquiring, capturing, sharing and using knowledge to enhance learning and performance in an organization. Institutionalization of knowledge management according to Meyer and Rowan (1977) is about, having knowledge acquisition activities that facilitate continuous acquisition of knowledge. Knowledge has been considered a fundamental strategic resource for enhancing an organization's competitiveness since knowledge is precious, rare and complicated to replicate (DeCarolis and Deeds, 1999).

Therefore there is need to have strategies that will ensure employees leaving the organization do not go with rare and difficult –to- imitate knowledge. As a result, business executives should have strategies to prevent loss of vital expertise especially when employees depart or retire. They have to devise strategies that ensure each individual knowledge is converted into organizational asset that is accessible to employees.

Most excellent practices in knowledge distribution have been gaining increased attention amongst academicians and business executives over the years (Riege, 2005). This according to Riege (2005) is because the commercial success and competitive advantage of enterprises is dependent on application of knowledge to maximize on firm performance and competitiveness. It facilitates connecting the right knowledge to the right people at the right time for timely decision-making (O'Dell and Hubert, 2011). KM programs connect employees to one another, to knowledge assets and with those with know-how with those who need it. The major objective of knowledge management according to Wiig (1997) is to make the enterprise operate shrewdly and to make the best value of its knowledge assets. To reach these goals, advanced organizations such as ConocoPhillips and Repsol-YPF have institutionalized knowledge management practices. Knowledge management facilitates developing competencies required in the innovation process (Du Plessis, 2007). Knowledge management practices influence innovation and Kianto (2011) established a correlation between knowledge management activities and continuous innovation. Knowledge, according to Lee and Yang (2000), is a foremost resource of innovation and creativeness in the organization. For example, having quick information on what customers need may prompt development of new products and services (Kotorov and Hsu, 2001). Therefore, KM is a strategy that modern day companies need to embrace and adopt because it has great potential.

### **1.1 Statement of the problem**

Mosoti and Mesheka (2010) study focused on the knowledge management practices (KMP) in organizations in Nairobi, Kenya. Their motivation was to find out if knowledge management has been implemented. They established that most of the challenges experienced by organizations in Nairobi are how to create and implement KMP as part of organizational culture, organizational strategy and organizational leadership. They established that 45 organizations representing 65 percent said they experience significant resistance when implementing knowledge management practices. Maingi (2007) study was to bring into focus the need to develop knowledge management as supplementary measure of the organizational profitability, sustainability and continuity, outside the usual measures that include financial statement analysis such as profit and loss accounts and balance sheets. One of his conclusions was that many people are still not aware of what Knowledge management is all about. Ogare and Othieno (2010) investigated on the concept of Knowledge Management as an important ingredient in the delivery of Veterinary Services in Kenya. They recommended that departments should strive to convert human capital (Tacit Knowledge) into structural capital (Explicit) to ensure that relevant information is available to the users of veterinary services and to retain institutional memory. None of these studies directly addresses the subject of institutionalization of knowledge management in the manufacturing sector in Kenya.

Business enterprises, in general and manufacturing enterprises in particular, operate in environments characterized by increased need for knowledge to create and sustain competitive differentiation. In order for organizations to succeed in highly dynamic business environment, it is critical that they embrace and institutionalize Knowledge management in their business operations. Organizations therefore, need to be cognizant of the factors that influence the success of institutionalization of Knowledge Management initiatives. Furthermore, particularly that knowledge management is taking centre stage in business management especially with the emergence of the knowledge economy, the study found it important to examine the critical factors that influence institutionalization of knowledge management in manufacturing enterprises in Kenya. Specifically the paper sought to determine the current status of institutionalization of Knowledge Management in manufacturing enterprises in Kenya, to examine factors that influence institutionalization of knowledge management in this sector and to determine the challenges in institutionalization of knowledge management in the manufacturing enterprise in Kenya.

## **2 Literature Review**

### **2.1 Knowledge**

Awad and Ghaziri (2007) define knowledge as understanding gained through experience or study. It is know-how or a familiarity with how to do something that enables a person to perform a specialized task. According to Davenport and Prusak (1998), knowledge is defined as a “fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information”. Davenport and Prusak also argue that it originates and is available in the minds of knowers.

While in organizations, it's entrenched in organizational routines, processes, practices, documents and norms. According to Nonaka (1998), there are two types of knowledge: tacit and explicit knowledge.

### **2.1.1 Tacit Knowledge**

Tacit knowledge exists in people's minds. It is difficult to articulate in writing and is acquired through personal experience (Nonaka, 1991). According to Polany (1962), tacit knowledge is that knowledge which cannot be explained fully even by expert and is transferable from one person to another only through apprenticeship. Tacit knowledge according to Davenport and Prusak is present inside the human intricacy and volatile.

### **2.1.2 Explicit Knowledge**

According to Sunassee and Sewry (2003, p, 25), explicit knowledge is knowledge, which is "articulate, capture and distribute in different formats, since it is formal and systematic". Explicit knowledge is codified, recorded and available, and is held in books, journal articles, databases, in corporate intranets and intellectual property portfolios. Explicit knowledge is captured in the form of documents, formulas, contracts, process diagrams and manuals (O'Dell and Hubert, 2011) and that is not useful without the context provided by experience.

### **2.1.3 Implicit Knowledge**

This is knowledge that can be articulated but is yet to be articulated and can only be implied by or inferred from observable behavior or performance (Nickols, 2000). Implicit knowledge is the middle ground of tacit and explicit knowledge. Frappaolo (2008) points out that some knowledge believed to be tacit can be transformed into explicit knowledge. This body of knowledge is referred to as the organization's implicit knowledge.

## **2.2 Manufacturing Sector in Kenya**

The manufacturing sector in Kenya dates back to the end of World War II (GoK, 2007). The sector is expected to play a critical role in propelling the economy to a 10 per cent growth rate, in line with the aspirations of vision 2030 and in supporting the country's social development agenda through the creation of jobs, the generation of foreign exchange, and by attracting foreign direct investment. Manufacturing is identified in Vision 2030 as key to addressing incidences of high poverty levels and unemployment. To meet these goals, the sector has to become more efficiency-driven, raising productivity per unit of input closer to those of Kenya's external competitors. One of the strategies according to (GoK, 2007) is to build knowledge, technology and innovation through training and research and development (R&D). The Vision 2030 recognizes the role of science, technology and innovation (STI) in a modern economy, in which new knowledge plays a central role in boosting wealth creation, social welfare and international competitiveness. One of the elements that allow effective exploitation of knowledge (GoK, 2007) is an economic and institutional regime that provides incentives for the efficient use of existing knowledge and creation of new knowledge.

## **2.3 Importance of Knowledge Management**

In the knowledge economy, business executives focus on learning and knowledge management. Tsoukas and Mylonopoulos (2004) notes that an organization that has the ability to create knowledge continuously has developed unique dynamic capability that promotes organizational learning. According to Davenport and Prusak (1998) most knowledge management projects aims: (1) to make knowledge visible and show the role of knowledge in an organization, (2) to develop a knowledge-intensive culture that facilitates knowledge sharing (as opposed to hoarding) and proactively seeking and offering knowledge; (3) to build a knowledge infrastructure-not only a technical system, but a web of connections among people given space, time, tools, and encouragement to interact and collaborate. To be competitive and successful, experience shows that enterprises must create and sustain a balanced intellectual capital portfolio (Wiig, 1997). While technology and environmental circumstances vary, intellectual capital in the form of knowledge possessed by an organization is distinctive, tacit, and hard to duplicate (Silvi and Cuganesan, 2006).

Knowledge has been acknowledged as a vital competitive asset and many enterprises are embracing it (Ajmal, Helo and Kekale, 2010). Furthermore, the key source of sustainable competitive advantage in an ever more unstable business environment is knowledge (Ling, et al, 2009). Making people knowledgeable brings innovation and continued ability to create and deliver products and services of the highest quality (Wiig, 1997).

The organizational capability to create, recognize, disseminate widely, and embody knowledge in new products and technologies is critical when faced with shifting markets, rapid product obsolescence, hyper competition and financial upheavals (Nonaka, 1991). This requires that the company develops effective knowledge harnessing, reuse, and learning from prior knowledge. This is why managers in manufacturing enterprises have recognized knowledge management as a key source of competitive advantage.

## **2.4 Institutionalization of Knowledge Management (IKM) in Manufacturing Enterprises**

In contemporary organizations, there is unquestionable urge for knowledge management practices in the workplace to enable managers to press forward knowledge sharing, attainment and preservation of knowledge (Sunassee and Sewry, 2003). While, Sandhawalia and Dalcher (2011), argues that organizations should develop Knowledge Management (KM) capabilities into a state where KM practices are institutionalized and rooted into its business processes. Institutionalization of knowledge management in my view means having organizational practices and technological infrastructure that make possible continuous knowledge creation and use to create and sustain competitive advantage.

### **2.4.1 Information Technological infrastructure**

The technology element of knowledge infrastructure comprises the information technology (IT) systems that enable the integration of information and knowledge in the organization as well as the creation, transfer and storage of organization's knowledge assets (Mills and Smith, 2011). The role of IT infrastructure is important, because it enhances knowledge access, transfer and facilitates the knowledge sharing. Kazemi and Allahyari (2010) points out that KM technologies and software application provide the right information to the right people at the right time. To maximize the value of knowledge, appropriate information system infrastructure is required to facilitate sharing, transforming and capturing knowledge. According to Ajmal, Helo and Kekale (2010) a strong system of information technology facilitates communication, collection, and re-use of knowledge. The knowledge management system should also facilitate communication and knowledge exchange across different organizational entities that share knowledge and experiences (Du Plessis, 2007).

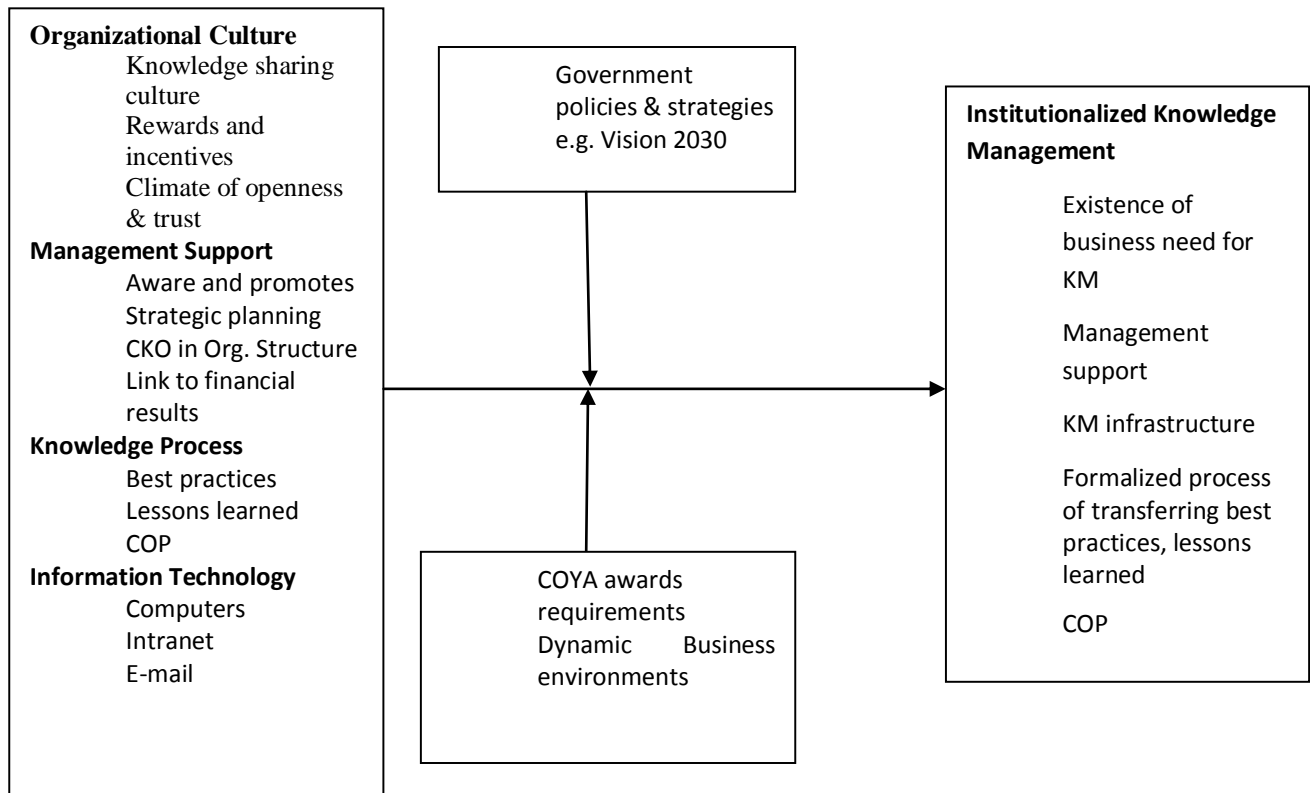
### **2.4.2 Management Support and Alignment of Knowledge Management Strategy with Business Strategy**

Management has to design an organization that ease and enhance knowledge creation. Muganda-Ochara et al, (2008) argue that it has to be a top-down approach, while Ray (2008) points out that, securing senior management commitment is fundamental. Plans in knowledge management should be aligned with the long-standing business strategies or else they would not happen as expected (Sanchez and Palacios, 2007). Managers need to attach knowledge management to business strategy. According to O'Dell and Hubert (2011), the most compelling reason for senior managers to become involved in their KM programs is to ensure that all KM efforts relate to the overall strategy. The management needs to develop the KM strategy with focus on achieving the business strategy. A company needs to create a culture of knowledge sharing and continuous improvement. Changes in organizational culture are necessary for instituting knowledge management (Bhatt, 2001).

Another factor in implementing KM is to develop the right incentives and rewards to encourage employees to share and contribute to the knowledge base. Reward and incentives should be available for individuals who contribute to and use a shared knowledge base (Lee and Yang, 2000). The reward system should clearly state expectations from each employee and the benefits of knowledge sharing. According to Zack, McKeen and Singh (2009), organizations that appreciate employees for their knowledge and reward for sharing that knowledge facilitate environment conducive for KM. Organization keen on managing knowledge have strategies for capturing lessons learned. Accessing lessons learned by others as well as best practices helps to avoid firms from repeating mistakes and rework. Lubit (2001) points out that giving the workforce the chance to study experts working through problems is a way of learning tacit knowledge. This amounts to transfer of best practice in terms problem solving. Sharing knowledge and best practice enhance innovation and learning in the organization.

## **2.5 Conceptual Framework**

The conceptual framework in Figure 1 shows the set of independent variables that affect the dependent variable, institutionalization of knowledge management in the manufacturing enterprises. The study proposed the predictor variables to include; organizational culture, management support, knowledge process and information technology.



**3.0 Research Methodology**

A cross sectional descriptive survey design guided the study. The data provided through this design sought to establish the factors that affect institutionalization of knowledge management. Using stratified random sampling approach, sixty (60) heads of departments and deputy heads of departments in the three selected manufacturing enterprises were selected to participate in the study. In each firm, twenty (20) respondents were selected with a composition of ten (10) heads of departments and ten (10) deputy heads of department in each organization. The choice of this group was guided by the premise that they were in positions of authority and could therefore influence and initiate knowledge management practices in their organizations (Nonaka and Takeuchi, 1995). The selected and studied companies were ‘Plastic Container Enterprise, ‘Edible Oil Enterprise and ‘Soft Drink Enterprise’. These companies were purposively selected because they had previously been rated (in 2007, 2008, 2009, 2010) the best companies in the Company of the Year Award (COYA) and coincidentally practiced knowledge management in their operations OPI (2012).

The study adopted a 56-item scale structured questionnaire. The first section of the questionnaire sought background information that was useful in profiling the respondents. The second and third sections of the questionnaire took the form of four point Likert scale questions, with 1 standing for strongly not important and 4 standing for very important. The structured questionnaire was preferred because of its versatility and ability to minimize response variations. A pilot study of ten (10) respondents who were conveniently selected from the employees of a manufacturing enterprise was used to pretest the questionnaire, following which the questionnaire was adjusted to enhance its face validity. The Cronbach’s alpha ( $\alpha$ ) was employed in testing the reliability of the instrument and the extent to which it yields consistent results (Field, 2009). The resulting alpha test of the instrument was  $\alpha = 0.758$  which was interpreted as acceptable. Primary data was collected from the senior managers of the three selected companies by use of self administered questionnaires. Data analysis was done using Statistical Package for the Social Sciences (SPSS) software which generated descriptive statistics and inferential statics. Factor analysis was used to extract the critical factors that influenced institutionalization of knowledge management.

**4. Data Analysis**

Out of the 60 respondents, 53 questionnaires were returned resulting in an 88.33% response rate which was considered adequate for the study to proceed with data analysis.

After transcribing the data it was prepared for analysis. The data set was then subjected to a normality test using Skewness and Kurtosis test and the data was found to be normally distributed.

#### **4.1 Sample Profile**

The demographic profile of the respondents showed that 35.8% of them were aged between 41-50 years, 32.1% were aged 31-40, while 7.5% were aged over 50 years. The variable age reflected skewness toward the older employees who had more tacit knowledge in terms of experience, learning, interaction and technical knowledge. On cross tabulating the years of service and employees intention to change employers, it was observed that 53.3% of the respondents who had worked for 6 -10 years in the same organization, had intention to change employers and that 50% of those who had worked over 15 years intended to change employers. The results also indicated that overall, 42.3% of the respondents' intent to change employer in the next 1-5 years, while only 28.8% of the respondents were not sure of whether to change their employer in the next 1-5 years. The study found this observation worrying given an earlier observation by O'Dell and Hubert (2011) that tacit knowledge is acquired by virtue of remaining in an organization for a longer period of time. This further meant that exit by experienced employees leads an organization to lose technical knowledge on key processes and competencies. On expertise of the respondents, the results showed that there was no respondent who indicated knowledge management as an area of expertise. This implies that the respondents represent diverse areas of specialization and expertise but had no intellectualism in knowledge management as an area of concentration.

#### **4.2 Status of Knowledge Management**

The study sought to examine the respondent's appreciation of knowledge management, 50.9% of the respondents described knowledge management as developing and utilizing knowledge to increase organizational performance and to meet strategic goals while 29.1% described knowledge management as the process of creating, sustaining, sharing and making the best use of available knowledge to enhance organizational performance. None of the respondents described knowledge management as a management fad that would soon be forgotten. This implied that all the respondents understood and appreciated knowledge management. On the question of need for knowledge management in their business operations, 94.3% of the respondents indicated that they have business need for knowledge management, while 5.7% reported that they saw no need for knowledge management in an organization. This position was inferred to mean that management staff in most organizations knew the value of knowledge management, a position supported by 75.5% of the respondents who further acknowledged that knowledge management ought to be recognized as an organizational asset. In contrast, the respondents were asked whether they have a knowledge management policy in their companies and 57.7% of the respondents said they did not have a policy while 42.3% said they had a policy. Hence, despite the managers appreciating the strategic need for knowledge management, at the organizational apex, this urge was yet to be inscribed into the organizational policy framework. Using a mean score test, the study sought to examine the 53 respondents perception of the key reasons for embracing knowledge management in organizations. Growth of business and retention of market share yielded the highest mean score of 3.6226 as the major reason why organizations should embrace knowledge management, followed by improving quality in production (3.5283) and creation of a sustained strategic competitive advantage came in third with a mean score of (3.4906).

#### **4.3 Factors Influencing Institutionalization of Knowledge management in the Manufacturing Enterprises in Kenya**

The second objective of this study was to establish factors that influence institutionalization of knowledge management among the manufacturing enterprises. The study employed the use of exploratory factor analysis (EFA) and in particular principal component analysis (PCA) and Varimax with Kaiser Normalization rotation method to decompose the critical influencers of institutionalization of knowledge management. As a pretest to EFA, a Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) was undertaken. The KMO statistics of 0.789 was arrived at and the sample was subsequently considered adequate for the study to proceed with factor analysis (SPSS, 2005). A value close to 1 indicates that the patterns of correlations are relatively compact and that factor analysis should yield distinct and reliable factors. Bartlett's Test of Sphericity was used to test the null hypothesis that the variables in the population correlation matrix are uncorrelated. Pallant (2010) suggests that Bartlett's Test Sphericity value is significant if  $p \leq 0.05$ . The Bartlett's Test value was deemed significant since the  $p$ -value = 0.000 and hence the study failed to accept the null hypothesis and proceeded with factor analysis on the premise that the variables in the population correlation matrix were correlated.

The study used PCA to extract the critical factors in two stages, unrotated solution and the rotated solution. In the process of extraction only variables with eigenvalue  $> 1$  were considered. The rest of the components with eigenvalue  $< 1$ , were not considered because they accounted for less than the variations explained by a single variable. The unrotated solution had 7 components with 15 of the variables loading onto component 1. The second component was explained by 3 variables and components 3 and 4 were explained by 2 variables each, while the components 5, 6 and 7 were each explained by only one variable. In order to explain the components better, a Varimax with Kaiser Normalization rotation method was employed.

The rotation resulted in a six components structure. The process of factor extraction was followed by factor interpretation. Component 1 was explained by 14 variables, with the variable employees are evaluated and compensated for contributing to organizational knowledge representing the greatest variations (0.8736), followed by recognition and rewards (0.8584) and work environment to share ideas, experiences, successes and failures (0.8257) coming third. The other variables that loaded onto component 1 were: the organization has ways to link knowledge to financial results, allocate resources towards increasing knowledge, management is aware of knowledge management and promotes a climate of openness and trust among employees, tacit knowledge is valued and transferred by use of community of practice, effective internal procedures for best practice transfer, employees are encouraged to use knowledge repositories of best practice, the company has formalized the process of transfer of lessons, knowledge repository, key element in strategic planning exercises, and encouraging knowledge sharing among employees respectively. The 14 variables were identified as the factor *organizational practices*. Variations in component 2 were explained by; access to computers representing the greatest variations (0.8502), document management (0.7764) and key element in strategic planning exercises (0.5044). These variables were identified as the factor *technological infrastructure*.

Component 3 was highly explained by social media (0.8548), followed by knowledge management software at 0.6500 and library or resource centre explained 0.5230 of the variations. These were identified as the factor *technological infrastructure*. Variations in component 4 were explained to a great extent by access to intranet 0.8496, followed by availability of internet at 0.7504 and appointed leader who leads knowledge management initiatives (0.5224) came third in this category. These were also identified as the factor *technological infrastructure*. Variations in component 5 were explained by availability of data warehousing facilities (0.7478) and valuing customer's input and employee interaction (0.6891). Variation in component 6 was explained by access to email facilities. Components 5 and 6 were interpreted as the factor *technological infrastructure*. The 25 variables that resulted from the rotated solution had mapped onto the 6 components under PCA. Following EFA, the 6 components decomposed into 2 factors; organizational practices and technological infrastructure. Whereas the study had proposed four factors (organizational culture, management support and knowledge process together formed a new construct, organizational practices in the conceptual framework), the study through EFA resulted in a two factor structure.

#### 4.3.1 Test of Internal Validity of the Findings

Internal validity means the researcher has evidence that what was done in the study caused what was observed or the study outcome. The outcome of the factor analysis process led to the conclusion that organizational practices and technological infrastructure had the greatest influence on institutionalization of knowledge management. The study sought to examine the internal validity of these findings. Using a Cronbach's alpha test, the 14 items that loaded on the first factor organizational practices were tested. All the 14 items had Cronbach's alpha values  $> 0.938$ , with knowledge repository having the highest  $\alpha = 0.945$ . The items exceeded the recommended threshold of 0.700 and hence the results met the requirements of internal validity. The 10 variables that loaded on the second factor technological infrastructure all had alpha values  $> 0.700$  and hence met the requirements of internal validity test. The variable with the highest Cronbach's alpha under factor two was, "We value customer's input and employee interaction (CRM)" where  $\alpha = 0.810$ . The overall Cronbach's alpha for factor 1 was  $\alpha = 0.945$ , while the overall Cronbach's alpha for factor 2 was  $\alpha = 0.788$ . The study therefore deduced that the 14 variables under factor 1 were very coherent hence credible in explaining the first construct (organizational practices). The 10 items under factor 2 were equally very coherent in explaining the second construct (technological infrastructure).

#### 4.3 Challenges in Institutionalization of Knowledge Management

The third research objective was to determine the challenges faced by firms in the manufacturing sector in institutionalizing knowledge management.

The respondents were asked to indicate the extent to which they agree or disagree with a list of challenges generated through empirical review. Using mean score ratings, developing a knowledge sharing culture was the greatest challenge with a mean score of 2.9623, followed by lack of management support & commitment scoring 2.8113 and lack of adequate time for knowledge sharing was the third challenge with a mean score of 2.8077. Developing a knowledge sharing culture was identified earlier by this study as mapping on the construct organizational practices. Dalkir (2005) points out that management commitment is important because top executives develop the business case for knowledge management. Dalkir further notes that, knowledge management decisions ought to be based on people, knowledge and business objectives without which it may fail. Another significant challenge was time. Riege (2005) observed that lack of time to share knowledge is one of the barriers to effective knowledge sharing. In agreement, Dalkir (2005) pointed out that today's work environment are increasingly knowledge intensive and scarce in resources such as time. The study further established that, politics and the organizational contexts influence the institutionalization of knowledge management. These findings imply that people and cultural issues are very critical in institutionalization of knowledge management. These includes: knowledge sharing culture, leadership, time, rewards and recognition and climate of trust and openness. All these variables have been broadly described as organizational practices.

### ***5 .Discussion of Findings***

This study established that a majority of the respondents understood knowledge management as a mechanism of developing and utilizing knowledge to increase organizational performance and to meet strategic goals. They gave two versions of their understanding of knowledge management.

First, that it is the development and utilization of knowledge to increase organizational performance and to meet strategic goals and second, that it is creating, sustaining, sharing and making the best use of available knowledge to enhance organizational performance. Despite acknowledging that knowledge management was a critical organizational asset base, the managers interviewed noted that most organizations had not yet developed a knowledge management policy. It was also observed that those respondents who recognize knowledge as an asset had strategic plans to implement knowledge management. The descriptive review revealed that amongst respondents who do not recognize knowledge as an asset, a majority were not planning to implement knowledge management. The researchers concluded that for organizations to sustain capability to compete in the market, they should not only embrace, but also recognize knowledge as a firm's core asset that is central to organizational performance.

This study established that there are number of reasons as to why these organizations are embracing knowledge management in their business operations. The major reasons given by respondents are: growth of business and retention of market share, improving quality in production, create and sustain strategic competitive advantage, nurturing creativity and innovation, key to company's business strategy, retain and capture employee knowledge, dynamic business environment and markets, knowledge creation and knowledge transfer, helps avoid costly mistakes and ill-informed decisions, in that order. One of the senior staff at plastic container enterprises noted that knowledge management focuses on achieving the company's objectives which includes performance improvement, realizing competitive advantage and being innovative.

It was established that the mean for encouraging employees to share knowledge was 3.1887 and the environment that facilitates sharing of ideas, experiences, successes and failures was 3.1566. The research also shows that the mean for reward and recognition system is 2.6415. The research findings indicate that the mean for knowledge as key element in strategic planning exercises is 3.2642, management awareness and promotion is 3.0755, while whether employees are evaluated and compensated for contributing to development of organizational knowledge is only 2.6981. The findings shows a significant mean of computers at 3.6800, e-mail (3.2549), intranet (3.2549), document management (3.0980) and internet (3.000). The use of social media in knowledge sharing had the lowest mean of 1.9608. In terms of knowledge management process, the findings show a high degree of agreement by the respondents' in value of customer's input and employee interaction at mean of 3.4906 and whether tacit knowledge is valued and transferred by use of community of practice had mean of 2.6415.

Overall, the study demonstrated that there are two critical factors that influence institutionalization of knowledge management. These factors are organizational practices and technological infrastructure. The predictors under organizational factors were: evaluation and compensation for contribution to organization knowledge, explicit recognition and reward system, environment to share ideas, experiences, successes and failures, ways to link



knowledge to financial results or performance, allocation of resources towards efforts that measurably increase knowledge base, management awareness and promotion, climate of openness, teamwork and trust exists among employees, tacit knowledge is valued and transferred by use of community of practice, effective internal procedures for best practices transfer, encouragement of employees to use knowledge repositories of best practice, formalization of the process of transfer of lessons learned, recognition of knowledge as a key element in strategic planning exercises and encouraging knowledge sharing among employees. While the explanatory variables under technological infrastructure were; computers, document management system, social media, knowledge management software, library or resource centre, intranet, internet customer and employee interaction, also known as customer relationship management (CRM) and data warehousing for instance data banks.

This finding is consistent with the work of Perrin, Rolland and Stanley (2007) whose study revealed that knowledge transfer is a complex, multifactor process relying on a number of interacting variables. The outcome of this study taken together with findings from the literature has highlighted the importance of considering a range of organizational practices and information technology capability to institutionalize knowledge management practices. The core-competencies of an organization are entrenched deep into organizational practice (Bhatt, 2001). This study concludes that these organizational practices have the highest influence in institutionalization of knowledge management. This study establishes that although organizational practices and information technologies are equally important, when a comprehensive view is taken in institutionalization of knowledge management, organizational practices are considered first and information technology infrastructures second and Dalkir (2005) corroborates by pointing out that save the how (technology), for last. O'Dell and Hubert (2011) note that, "people, not technology, are the key to KM" (p.129). They argue that technology can capture descriptions however, people do convey practices.

This research found out that there are quite a number of challenges in institutionalization of knowledge management. These challenges were ranked as encompassing; developing a knowledge sharing culture, management support and commitment, lack of time for knowledge sharing, information technology, lack of reward and recognition for knowledge sharing and best knowledge not accessible had the lowest mean score. One of the senior staff at Plastic Container Enterprises noted that one of the main challenges the company faced was getting its employees to understand what knowledge management is all about and how it can benefit them and the company.

### **5.1 Managerial Implication**

The findings of this study point out that for managers in manufacturing enterprises to foster sustainable competitive advantage, innovation and quality production they need to embrace and institutionalize knowledge management practices. It is being recommended that the leadership of these organizations should develop an explicit policy on knowledge management in the same breath with quality, health and safety policies. Equally important, organizations should redress their organizational structure to include the position of Chief Knowledge Officer who will be responsible for managing and driving knowledge management agenda in the organizations and who should also establish mechanisms and structures that help in sustaining knowledge acquisition over time.

It is also recommended that executives of modern manufacturing enterprises need to institutionalize knowledge management practices in order to capture, retain and share intellectual treasure and to institutionalize knowledge management, the organizational leadership should put more emphasis on the organizational practices such as knowledge sharing culture, environment to share ideas, experiences, successes and failures, time for knowledge sharing and establish strategies for recognition, reward and measurement. This is because the study found out that organizational practices have the highest influence than the technological infrastructure. This will facilitate sharing of knowledge and its application in sustaining continuous improvement of products and processes.

Last, management should develop a Knowledge Repository and Resource Centers to facilitate use and creation of new knowledge and in addition, the government and COYA organizers should put more emphasis on knowledge-driven enterprises. They should develop viable linkages between industry, government and research institutions. "Strategic transformation of the manufacturing industry requires planning and implementation of well-defined strategies" (KIPPRA, 2010, p.94). In my view, this transformation should include strategies that embrace and institutionalize knowledge management. Higher learning institutions should as a matter of priority review their curriculum to reflect the knowledge-driven economy and include training of human capital that not only appreciate, but also have knowledge management competence and skills.

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**Appendix**

**Table 1: Reasons for Embracing Knowledge Management**

| Reasons for Embracing KM                               | Mean<br>n=53 |
|--|--------------|
| Growth of business and retention of market share       | 3.6226       |
| Improving quality in production                        | 3.5283       |
| Create and sustain strategic competitive advantage     | 3.4906       |
| Nurturing creativity and innovation                    | 3.4528       |
| Key to company's business strategy                     | 3.3774       |
| Retain and capture employee knowledge                  | 3.2830       |
| Dynamic business environments and markets              | 3.2642       |
| Knowledge creation and knowledge transfer              | 3.1132       |
| Helps avoid costly mistakes and ill-informed decisions | 3.0189       |

**Table 2: KMO and Bartlett's Test**

|  |                    |        |
|--|--------------------|--------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | 0.789  |
| Bartlett's Test of Sphericity                    | Approx. Chi-Square | 69.416 |
|  | df                 | 325    |
|  | Sig.               | 0      |

**Table 3: Rotated Component Matrix**

| Variables  | Component |        |        |        |        |   |        |
|--|-----------|--------|--------|--------|--------|---|--------|
|  | 1         | 2      | 3      | 4      | 5      | 6 | 7      |
| Employees are evaluated for contributing to organizational knowledge     | 0.8736    |        |        |        |        |   |        |
| Recognition and rewards for sharing, using and contributing to knowledge | 0.8584    |        |        |        |        |   |        |
| Work environment to share ideas, experiences, successes and failures     | 0.8257    |        |        |        |        |   |        |
| The organization has ways to link knowledge to financial results         | 0.8005    |        |        |        |        |   |        |
| Allocates resources towards efforts that measurably increasing knowledge | 0.7935    |        |        |        |        |   |        |
| Management is aware of KM and promotes                                   | 0.7649    |        |        |        |        |   |        |
| Climate of openness and trust exists among employees                     | 0.7443    |        |        |        |        |   |        |
| Tacit knowledge is valued and transferred by use of CoP                  | 0.6571    |        |        |        |        |   |        |
| Effective internal procedures for best practices transfer                | 0.6504    |        |        |        |        |   |        |
| Employees are encouraged to use knowledge repositories of best practice  | 0.6399    |        |        |        |        |   |        |
| The company has formalized the process of transfer of lessons learned    | 0.6061    |        |        |        |        |   |        |
| Knowledge repository   | 0.5982    |        |        |        |        |   |        |
| Key element in strategic planning exercises                              | 0.5959    | 0.5044 |        |        |        |   |        |
| Encouraging knowledge sharing among employees                            | 0.5406    |        |        |        |        |   |        |
| Computers  |           | 0.8502 |        |        |        |   |        |
| Document management  |           | 0.7764 |        |        |        |   |        |
| Social media   |           |        | 0.8548 |        |        |   |        |
| Knowledge management software  |           |        | 0.6500 |        |        |   |        |
| Library or resource centre   |           |        | 0.5230 |        |        |   |        |
| Intranet   |           |        |        | 0.8496 |        |   |        |
| Internet   |           |        |        | 0.7504 |        |   |        |
| There is an appointed leader who leads knowledge management initiatives  |           |        |        | 0.5224 |        |   |        |
| Data warehousing e.g. data banks   |           |        |        |        | 0.7478 |   |        |
| We value customer's input and employee interaction                       |           |        |        |        | 0.6891 |   |        |
| e-mails  |           |        |        |        |        |   | 0.8113 |

Extraction Method: Principal Component Analysis.  
 Rotation Method: Varimax with Kaiser Normalization.  
 Rotation converged in 9 iterations.

**Table 4: Factor Interpretation**

| Component                                     | Variables  | Factor Loadings | Factor                       | Cronbach's Alpha if Item Deleted |
|---|--|-----------------|------------------------------|----------------------------------|
| 1   | Employees are evaluated for contributing to organizational knowledge | 0.8736          | Organizational Practices     | 0.94                             |
|   | Recognition and rewards  | 0.8584          |                              | 0.94                             |
|   | Environment to share ideas, experiences, successes and failures      | 0.8257          |                              | 0.941                            |
|   | Link knowledge to financial results                                  | 0.8005          |                              | 0.937                            |
|   | Allocates resources towards increasing knowledge                     | 0.7935          |                              | 0.938                            |
|   | Management is aware of KM and promotes                               | 0.7649          |                              | 0.938                            |
|   | Climate of openness and trust  | 0.7443          |                              | 0.94                             |
|   | Tacit knowledge is valued and transferred by use of CoP              | 0.6571          |                              | 0.942                            |
|   | Best practice transfer   | 0.6504          |                              | 0.94                             |
|   | Use of knowledge repositories  | 0.6399          |                              | 0.944                            |
|   | The company has formalized the process of transfer of lessons        | 0.6061          |                              | 0.943                            |
|   | Knowledge repository   | 0.5982          |                              | 0.945                            |
|   | Key element in strategic planning exercises                          | 0.5959          |                              | 0.941                            |
| Encouraging knowledge sharing among employees | 0.5406   | 0.942           |                              |                                  |
| 2   | Computers  | 0.8502          | Technological Infrastructure | 0.769                            |
|   | Document management  | 0.7764          |                              | 0.765                            |
| 3   | Social media   | 0.8548          |                              | 0.753                            |
|   | Knowledge management software  | 0.65            |                              | 0.774                            |
|   | Library or resource centre   | 0.523           |                              | 0.768                            |
| 4   | Intranet   | 0.8496          |                              | 0.747                            |
|   | Internet   | 0.7504          |                              | 0.724                            |
| 5   | Data warehousing for example data banks                              | 0.7478          |                              | 0.776                            |
|   | Value of customer's input and employee interaction (CRM)             | 0.6891          |                              | 0.812                            |
| 6   | E-mails  | 0.8113          |                              | 0.745                            |

**Table 5: Challenges in Institutionalization of Knowledge Management**

| Challenges in Institutionalization of KM                   | n  | Mean   |
|--|----|--------|
| Developing a knowledge sharing culture                     | 53 | 2.9623 |
| Management support & commitment                            | 53 | 2.8113 |
| Time for knowledge sharing                                 | 52 | 2.8077 |
| Information technology to facilitate sharing of knowledge  | 53 | 2.7547 |
| Lack of reward and recognition for knowledge sharing       | 53 | 2.7547 |
| Lack of understanding of knowledge management and benefits | 52 | 2.7115 |
| Lack of trust and openness among employees                 | 52 | 2.5962 |
| Hoarding of knowledge                                      | 52 | 2.5192 |
| Best knowledge not accessible                              | 52 | 2.3846 |