INSTITUTIONALIZATION OF KNOWLEDGE MANAGEMENT

IN MANUFACTURING ENTERPRISES IN KENYA:

A CASE OF SELECTED COMPANIES

BY

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DEED OF DECLARATION

This Research Thesis is my original work and has not been submitted for a degree in any other University or Institution.

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This Research Thesis has been submitted for examination with my approval as University Supervisor.

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To my family: my wife Leah, and my two sons Ryan Resot and Justyn Robby.

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ABSTRACT

In the fast changing business environment, knowledge has become the mainstay of every organization in creating and sustaining competitive differentiation. This study sought to investigate factors that influence institutionalization of Knowledge Management (KM) in manufacturing enterprises in Kenya. The specific objectives were to determine the current status of Knowledge Management institutionalization, examine factors that influence institutionalization of knowledge management and the challenges in institutionalization of knowledge management in the manufacturing enterprise. The target population was 60 senior managers in the three selected manufacturing companies. The researcher took a census of the heads of departments and deputy heads of departments in charge of the following departments: human resource, ICT, Finance, marketing, Procurement, Production, Internal audit, administration, Research & Development, public relations and communications, operations and engineering. The response rate was 88.3%. A combination of descriptive statistics and exploratory factor analysis was used to analyze the data. The study established that 50.9% of the respondents understood knowledge management as developing and utilizing knowledge to increase organizational performance and to meet strategic goals and 49.1% indicated it's about creating, sustaining, sharing and making the best use of available knowledge to enhance organizational performance. The growth of business and retention of market share (mean, 3.6226), improving quality in production (mean, 3.5283) and creation and sustaining strategic competitive advantage (mean, 3.4906) were the major reasons for embracing knowledge management. 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 requires that manufacturing enterprises institutionalize knowledge management practices to facilitate sharing of knowledge and application to sustain continuous improvement of products and processes. This study established that the organizational practices and the technological infrastructure are two critical factors that influence institutionalization of knowledge management in the manufacturing enterprise in Kenya. The study found out that developing a knowledge sharing culture (mean, 2.9623), top management support (mean, 2.8113) and lack of time for knowledge sharing (mean, 2.8077) are the major challenges in institutionalization of knowledge management in this sector. The study recommends that the leadership of these organizations should develop an explicit knowledge management policy in the same breadth with quality policy and health and safety policy. They should restructure their organizational structure to include the position of Chief Knowledge Officer who shall drive the knowledge management agenda in the organization. The researcher recommends that to institutionalize knowledge management, the organizational leadership should put more emphasis on the organizational practices. Further research should be done on the effects of organizational practices on successful institutionalization of knowledge management in manufacturing or service industry.

TABLE OF CONTENTS

LIST OF TABLES

ABBREVIATIONS/ACRONYMS

ANOVA   -   Analysis of Variance

APQC   -   American Productivity & Quality Centre

CEO   -   Chief Executive Officer

CKO   -   Chief Knowledge Officer

CoP   -   Community of Practice

COYA   -   Company of the Year Award

CRM   -   Customer Relationship Management.

EFA   -   Exploratory Factor Analysis

GDP   -   Gross Domestic Product

GoK   -   Government of Kenya

HOD   -   Head of Department

HRD   -   Human Resource Development

HRO   -   Human Resource Officer

IBM   -   International Business Machines

ICT   -   Information and Communication Technologies

IKM   –   Institutionalization of Knowledge Management

IT   -   Information Technology

KIPPRA   -   Kenya institute for public policy research and analysis

KM   -   Knowledge Management

KMA   -   Knowledge Management Africa

KMP   -   Knowledge Management Practices

KNBS   -   Kenya National Bureau of Statistics

KNOW   -   Knowledge Network

MAKE   -   Most Admired Knowledge Enterprise

PCA   -   Principal Component Analysis

PhD   -   Doctor of Philosophy

R&D   -   Research and Development

SECI   -   Socialization, Externalization, Combination and Internalization

SPSS   -   Statistical Package for Social Science

USA   -   United States of America

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

In the fast changing business environment, knowledge has become the mainstay of every organization in creating and sustaining competitive differentiation. Many organizations are struggling to meet or keep up with the demands of their clients, competitors, investors and regulators. Business executives are realizing that knowledge is the organization's most important asset and that its quality and availability can help them to face the demands and challenges of the information age and the knowledge economy. Enterprises are increasingly realizing the need for knowledge strategies that address factors such as rapid organizational growth, layoffs, turnover, mergers and acquisitions, and internal redeployments (O'Dell and Hubert, 2011). Knowledge is a major driving force for organizational change and wealth creation, and effective knowledge management is increasingly becoming an important source of competitive advantage and a key to the success of modern organizations (Savvas and Basilliades, 2009). Organizations aim to develop Knowledge Management (KM) capabilities into a state where KM practices are institutionalized and embedded into its daily work practices (Sandhawalia and Dalcher, 2011). Institutionalization involves routinizing knowledge acquisition activities thus allowing for the continued acquisition of knowledge over time (Meyer and Rowan, 1977).

In modern organizations, there is indisputable need for knowledge management practices in the workplace to enable managers to promote knowledge sharing, acquisition and retention of intellectual capital (Sunassee and Sewry, 2011). Intellectual capital is a special form of human capital that is codified, formalized, captured and leveraged to produce a higher value asset (Hafeez and Abdelmeguid, 2003). Knowledge management is increasingly recognized by senior executives as an important dimension of the business strategy and contributor to organizational performance (Squier and Snyman, 2007). KM has become increasingly important as organizations realize that effective use of their vast and varied knowledge assets and resources provides them with the ability to innovate and respond to fast changing customer expectations (Sandhawalia and Dalcher, 2011). Knowledge is considered the most important strategic resource

for ensuring an organization's long-term survival and success because some forms of complex knowledge, such as capabilities or routines can be valuable, scarce and difficult to imitate (DeCarolis and Deeds, 1999).

Employees leaving the organization go with rare and difficult –to- imitate knowledge. The retirement of a record 77 million baby boomers has the potential to result in huge losses of critical tacit knowledge, including the loss of organizational and technical knowledge on key processes and competencies (O'Dell and Hubert, 2011). Business executives must devise strategies to prevent loss of vital information and expertise when employees depart or retire. Developers of business strategy are focusing on what a company knows, and what it needs to know, (knowing what we know) as inputs to strategic goals (Davenport and Volpel, 2001). Today organizations need to keep up with competitors and use knowledge to beat them (Ray, 2008) and Nonaka (1998) points out that in an economy where the only certainty is uncertainty, the one sure of lasting competitive advantage is knowledge. Verma (2009) states that to achieve continuous improvement, workers need leading edge knowledge to achieve innovation. Therefore, 21st organizations need to embrace KM to facilitate connection of people to people, implementation of best practices and prevention of loss of tacit knowledge.

At Repsol-YPF, a leading manufacturing enterprise and expert in energy in Spain, **"**knowledge management supports the processes for learning, exchange, creation and dissemination of the know-how necessary to implement the growth policy". They have made KM an undifferentiated, intrinsic part of the daily activity of each employee, of their work processes and evaluation systems. KM has been fully institutionalized and has been awarded the prestigious Most Admired Knowledge Enterprises (MAKE) award, placing them among the ten best companies in KM in Europe in 2009. This award, created in 1999 by Teleos and the KNOW Network, evaluates the ability of an organization to create value for their shareholders and to increase social capital by transforming knowledge into better or more innovative products, services and solutions (Repsol-YPF, 2010). ConocoPhillips is an international integrated energy company and the third-largest oil company in the United States. Its KM vision is to become "a workplace where employees

continuously deliver additional value through global collaboration and expertise sharing" (O'Dell and Hubert, 2011).

Throughout the past decade, KM has been the primary focus of attention from organizations, who perceive it as a strategic means for innovation and the maintenance of competitive advantage (Chua, 2009).Successful Japanese manufacturing companies such as Honda, Canon, Matsushita, NEC, Sharp, and Kao, have become famous for their ability to respond quickly to customers, create new markets, rapidly develop new products and dominate emergent technologies. The reason for these according to Nonaka (1998) is because of their unique approach to managing the creation of knowledge. They have Knowledge Management strategies in place. It allows an organization to best leverage its key asset, the knowledge of its employees (Wiig, 1993). In the western businesses enterprises, KM has been institutionalized. Most large companies in the USA and many in Europe, have knowledge management initiative in place, including every major firm in the professional services, automobile, pharmaceutical, and oil industries (Davenport and Volpel, 2001). The Chief Knowledge Officer (CKO) positions have been established in many companies.

African science researchers and policy advisers set up a foundation, known as the Knowledge Management Africa (KMA) Foundation that promote the use of scientific and other forms of knowledge by both public and private decision-makers in the continent. The mission of KMA is to promote the use of Africa's collective knowledge as a key development resource and establish KM platforms that will create access to existing networks and facilitate the sharing and utilization of knowledge across all sectors (Mosoti and Mesheka, 2010). Three conferences have been held in Africa to fine tune this new management concept- one in Johannesburg, South Africa in 2005, the second in Nairobi on July, 2007 and the latest one in Dakar, Senegal in 2009 (Karanja,2010). This is as a result of the continent realizing that it is important to tap her people's knowledge as much as possible. The general thinking is that for any organization that wants to survive the intense competition for innovation must consider hiring knowledge managers, whose job will be to take stock of what each and every member of the organization knows especially in the current scenario where firms are increasingly seeking to maintain a lean workforce and still achieve

quality. With the conferences that have been held in Africa, this is an indicator that the concept has received acceptance from both scholars and policy makers.

The South African government has clearly stated the importance of KM and Indigenous knowledge Systems in the drive towards a knowledge economy. Kruger and Johnson (2010) in their research on institutionalization of KM principles, policies and strategies, found that: there is a definite trend towards the establishment of KM principles and the successful implementation of KM across South African industries. Kenya intends to become a knowledge-led economy wherein the creation, adaptation and use of knowledge will be among the most critical factors for rapid economic growth (GoK, 2007). Mosoti and Mesheka (2010) study focused on the knowledge management practices (KMP) in organizations in Nairobi, Kenya. Their motivation was whether knowledge management is implemented. They found that most of the challenges faced 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 mould knowledge management as an additional measure of the organizational profitability, sustainability and continuity, besides the known traditional 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 entails or what it means to their organizations. Ogare and Othieno (2010) investigated on the concept Knowledge Management as an important ingredient in the delivery of Veterinary Services in Kenya. They recommended that department should strive to convert human capital (Tacit Knowledge) into structural capital (Explicit) to ensure that relevant information is made available to the users of veterinary services and to retain institutional memory.

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. 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 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 competiveness. 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. Knowledge Management is one of the strategies that manufacturing enterprises in Kenya should embrace and institutionalize in their business operations and according to Drucker (1998) to remain competitive businesses (including manufacturing enterprises) will have to convert themselves into organizations of knowledgeable specialists. They have to develop comprehensive infrastructure that support knowledge management practices.

The manufacturing sector in Kenya grew by 4.4 per cent in 2010 compared to a marginal growth of 1.3 percent in 2009. Real GDP expanded by 5.6 percent and in 2010 compared to a growth of 2.6 per cent in 2009 (KNBS, 2011). The manufacturing sector is envisaged to play pivotal role in Kenya's industrialization and employment creation. It contributed 13.3 per cent of the total formal employment in 2010 (KIPPRA, 2010). The Kenya government appreciates the fact that knowledge economy is a window of opportunity to improve welfare and move along an accelerated path toward sustainable development by shifting the economy onto a higher performance path (Chifallu, 2011). Knowledge, technology and innovation will form an integral part of the national economy and easily fuse into the global economy. A knowledge-based economy is an economy in which the production, distribution and use of knowledge is the main driver of growth, wealth creation and employment across all industries.

1.2 Statement of the Problem

Pertinent literature on Knowledge Management has demonstrated that business enterprises, in general and manufacturing enterprises in particular, operate in environments characterized by increased need for intellectual capital and knowledge to create and sustain competitive advantages. Organizations therefore, need to be cognizant of the factors that influence the success of Knowledge Management initiatives. Reviewed literature also shows that there is increasing need for Knowledge Management as a strategy for creating and sustaining competitiveness. In order for organizations to succeed in highly dynamic business environment, it is critical that they embrace and institutionalize Knowledge management in their operations. There are a few studies in Kenya (Maingi, 2007; Mosoti and Mesheka, 2010; Ogare and Othieno 2010) dealing with knowledge management. However, none of them directly addresses the subject of institutionalization of knowledge management in the manufacturing sector in Kenya. Given the centrality of Knowledge Management as a key success factor in the modern business, it should be studied and documented. This study therefore sought to investigate factors affecting institutionalization of Knowledge Management in manufacturing enterprises in Kenya.

1.3 Objectives of the Study

The overall objective of the study was to investigate factors affecting institutionalization of Knowledge Management in manufacturing enterprises in Kenya.

1.3.1 Specific Objectives

1. To determine the current status of institutionalization of Knowledge Management in manufacturing enterprises in Kenya.
2. To examine factors that influence institutionalization of knowledge management in this sector.
3. To determine the challenges in institutionalization of knowledge management in the manufacturing enterprise.

1.4 Research Questions

1. What is the current status of knowledge management institutionalization in manufacturing enterprises in Kenya?
2. What are the factors that influence institutionalization of knowledge management?
3. What are the challenges in institutionalization of knowledge management?

1.5 Significance of the Study

The competitive business environment that organizations are operating requires them to utilize and strengthen knowledge capital. Most organizations in Kenya are faced with the problem of knowledge loss and proactive responses such as harnessing and retaining valuable knowledge need to be implemented to retain both tacit and explicit knowledge. Most of the available literature concerning KM has considered knowledge as a significant organizational asset that leverages the success and competitiveness of a business enterprise. The importance of this research was generated from the value of KM as a strategic business resource that requires due attention from business executives.

The study findings will help business executives many of whom are unsure how to implement it in their organizations and provide valuable information, which will help the business sector to accomplish KM. With the rapidly changing business environments, managers need to know the factors that influence the development of an effective knowledge management strategy and provide employees with the best available knowledge to support decision making process. Findings of the study, can serve as input for manufacturing enterprises in developing best practices in implementing KM for improving enterprise performance. The lack of prior empirical research into the institutionalization of KM in the manufacturing enterprises in the context of East African region and Kenya in particular makes the findings of this research relevant to senior executives in the manufacturing sector. The findings will be highly relevant as knowledge management in organizations strongly contribute to creating and sustaining competitive advantage. This will help senior managers acknowledge that if the knowledge in their companies exists mainly in the minds of their employees, or hidden in reports gathering dust, or walking out the door when employees retire or change jobs, then may be knowledge management is the new

strategy that can help and Wagner (2003) has noted that knowledge can bring improvement in performance if it has been captured, organized, disseminated and used appropriately.

1.6 Delimitation of Study

This study was limited to the manufacturing sector in Kenya of selected companies. The study focuses only on Knowledge Management aspect of management. It was based on a census of heads of departments and deputy heads of departments. The researcher also based on documentary evidence such as notices, brochures and reports. The researcher experienced unwillingness of some respondents to response to questionnaires citing that they were very busy and have no time to do so. Other limitations were time, resources, and the study was done within six months. Another limitation is inadequate focus on organizational structure on the conceptual framework and that the researcher did not use regression analysis.

1.7 Operational Definition of Terms

This area will provide definitions of concepts that will be used in the study.

Knowledge

Knowledge is what employees know about their customers, one another, products, processes, mistakes, and successes, either tacit or explicit.

Tacit knowledge

This is knowledge that is in the heads of the people, also known as informal or uncodified knowledge. The greatest knowledge base in the organization is the tacit knowledge that is continually changing and evolving.

Explicit knowledge

This is knowledge that is written down or in a knowledge base, that is, it is recorded and available, held in databases, books, repositories in corporate intranets and intellectual property portfolios.

Knowledge Management

Knowledge management is the process of identifying, growing and effectively applying an organization's existing knowledge in order to achieve the organization's goals, while creating an organizational culture that permits further knowledge creation.

Institutionalization

Process which translates an organization's code of conduct, mission, policies, vision, and strategic plans into action guidelines applicable to the daily activities of its officers and other employees. It aims at integrating fundamental values and objectives into the organization's culture and structure.

Knowledge sharing

Knowledge sharing refers to the degree to which people in an organization are able to share their knowledge gained as a result of their experience, expertise, culture, etc with peers (Brown, et al, 2003). A process of transferring human knowledge about a process or a procedure to others in the organization; ability and willingness of people to exchange specialized experience with others for the common good of the organization. This is the dissemination of information and knowledge throughout the organization.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on the review of the literature on knowledge management. The main areas covered are knowledge, knowledge management in the manufacturing enterprises, importance and aspects of institutionalization of knowledge management. It also covers the theoretical framework and conceptual framework.

2.2 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's (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. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms. The researcher concurs with this definition. Knowledge is the insights, understandings, and practical know-how that we all possess- the fundamental resource that allows us to function intelligently (Wiig, 1996). According to Nonaka (1998), there are two types of knowledge: tacit and explicit knowledge.

2.2.1 Tacit Knowledge

Tacit knowledge is the form of knowledge that is subconsciously understood and applied, difficult to articulate, developed from direct experience and action and usually shared through highly interactive conversation, storytelling and shared experience (Sunassee and Sewry, 2011).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 explicated fully even by expert and can be transferred from one person to another only through a long process of apprenticeship. The main challenge in knowledge management is how to capture tacit knowledge and make it explicit that can easily be understood and used. Tacit knowledge is personal, context-specific and therefore hard to formalize and communicate (Nonaka and Takeuchi, 1995). Therefore knowledge managers should facilitate and create an enabling environment that will facilitate subconscious release of knowledge from the mind of the knowers. Tacit knowledge (also known as informal or uncodified knowledge) is what you know or believe from experience and can be found in interactions between employees and customers (O'Dell and Hubert, 2011). They further state that it is hard to catalogue, highly experiential, difficult to document and ephemeral. Tacit knowledge management is the process of capturing the experience and expertise of the individual in an organization and making it available to anyone who needs it (Dalkir, 2005). Knowledge remains tacit until someone asks a direct question (which at that point, tacit can become explicit), but unless that information is captured for someone else to use again at a later date, learning, productivity, and innovation are stifled.

2.2.2 Explicit Knowledge

According to Sunassee and Sewry (2011) explicit knowledge is knowledge that is easy to 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 (also known as formal or codified knowledge) comes in the form of documents, formulas, contracts, process diagrams, manuals and so on (O'Dell and Hubert, 2011) and that is not useful without the context provided by experience.

2.2.3 Implicit Knowledge

This is knowledge that can be articulated though it 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.

2.3 Knowledge Management

American Productivity & Quality Centre (APQC) defines knowledge management as a systematic effort to enable information and knowledge to grow, flow, and create value (O'Dell and Hubert, 2011). Sunassee and Sewry (2011) Knowledge management is the process of identifying, growing and effectively applying an organization's existing knowledge in order to achieve the organization's goals, while creating an organizational culture that permits further knowledge creation. KM is a comprehensive process of knowledge creation, knowledge validation, knowledge presentation, knowledge distribution, and knowledge application (Bhatt, 2001). Advanced organizations build, transform, organize, deploy and use knowledge assets effectively (Wiig, 1997). Knowledge management involves the proactive harvesting and building of a firm's intellectual capital, thereby reinforcing the competences required by the organization to achieve its objectives (Bontis and Fitz-enz, 2002). It addresses how to access knowledge embedded in systems and in the heads of employees.

Knowledge management is composed of various processes to include: ''generating new knowledge; accessing knowledge from external sources; representing knowledge in documents and databases; embedding knowledge in processes, products, or services; transferring existing knowledge around an organization; using accessible knowledge in decision making; facilitating knowledge growth through culture and incentives; and measuring the value of knowledge assets and the impact of knowledge management'' (Rowley, 1999). This processes help in institutionalization of Knowledge Management. Swan, Scarbrough and Preston (1999) has

defined KM as "any process or practice of creating, acquiring, capturing, sharing and using knowledge, wherever it resides, to enhance learning and performance in organization. Knowledge management is the deliberate and systematic coordination of the organization's people, technology, processes, and organizational structure in order to add value through reuse and innovation (Dalkir, 2005). He further states that this coordination is achieved through creating, sharing, and applying knowledge as well as through feeding the valuable lessons learned and best practices into corporate memory in order to foster continued organizational learning.

2.4 Importance of Knowledge Management

Best practices in knowledge sharing have been gaining increased attention amongst researchers and business managers in recent years (Riege, 2005).This according to Riege, is because the commercial success and competitive advantage of companies seems to lay increasingly in the application of knowledge and location of those parts of the organization where knowledge sharing practices can assist in optimizing business goals. Knowledge management is about creating and managing the processes to get the right knowledge to the right people at the right time and help people share and act on information in order to improve organizational performance (O'Dell and Hubert, 2011). KM programs should connect employees to one another, to knowledge assets and with those with experience or know-how with those who need it. The major objectives of knowledge management according to Wiig (1997) are: first, to make the enterprise act as intelligently as possible to secure its viability and overall success, secondly, to otherwise realize the best value of its knowledge assets. To reach these goals, advanced organizations build, transform, organize, deploy and use knowledge assets effectively. He further states that, making people knowledgeable brings innovation and continued ability to create and deliver products and services of the highest quality. Knowledge management assists in building competencies required in the innovation process and assists in creating tools, platforms and processes for tacit knowledge creation, sharing and leverage in the organization, which plays an important role in the innovation process (Du Plessis, 2007). Knowledge management practices influence innovation and Kianto (2011) found a connection between knowledge management activities and continuous innovation. Knowledge is the source of innovation and creativity (Lee and Yang, 2000).

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 on an ongoing basis has developed a capability that is dynamic and unique and that potentially underpins continuous organizational learning. According to Davenport and Prusak (1998) most knowledge management projects have one of three aims: (1) to make knowledge visible and show the role of knowledge in an organization, mainly through maps, yellow pages, and hypertext tools; (2) to develop a knowledge-intensive culture by encouraging and aggregating behaviors such as 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. Therefore, KM is a strategy that modern day companies need to embrace and adopt because it has great potential. Knowledge can lead to innovations, creativity and increased profits (Ray, 2008). For example, having quick information on what customers need may trigger development of new products and services (Kotorov and Hsu, 2001). Knowledge management assists in building competencies required in the innovation process and in converting tacit knowledge into explicit knowledge (Du Plessis, 2007).

Organizations implement a knowledge management to institutionalize and promote knowledge sharing practices (O'Dell and Hubert, 2011). KM practices accelerate the rate of learning, cut down the risks of not knowing and repeating mistakes, and retain knowledge assets when people move, leave, or retire. The following is an illustration of benefits of knowledge management according to (O'Dell and Hubert, 2011): "In 2000, Brad Anderson, then president of electronics retailer Best Buy, called APQC for help (to see if knowledge management could help). He wanted Best Buy to exploit the knowledge gained from its head start selling digital electronics. Best Buy has grown from 400 to 1400 stores in United States and Canada, with another 2600 stores around the world, and from 6 billion USD to 50 billion USD in annual sales. Of course, KM is only part of the reason; but if you ask the folks at the Best Buy, they will tell you the ability to share what they know and act on it has been a large part of their success." Grant (1996) regards knowledge as the most strategically important resource that organization possesses.

2.5 Knowledge Management in Manufacturing Enterprises

More than ever companies are forced to renew their product portfolio (Alwis and Hartmann, 2008).The next generation of enterprises should be in a position to make use of information and extract knowledge from information system and the business environment to maximize their return (Davenport and Prusak, 1998).To be competitive and successful, experience shows that enterprises must create and sustain a balanced intellectual capital portfolio (Wiig, 1997). While technology and environmental conditions change, intellectual capital in the form of knowledge possessed by an organization is unique, tacit, and difficult to replicate or move (Silvi and Cuganesan, 2006). Knowledge is now universally recognized as a critical competitive asset, and interest in knowledge management has therefore increased in most companies (Ajmal, Helo and Kekale, 2010). According to (Nonaka, 1991) a company is not a machine but a living organism. Much like an individual, it can have a collective sense of identity and fundamental purpose. To create new knowledge means quite literally to re-create the company and everyone in it in a nonstop process of personal and organizational self-renewal (Nonaka, 1991).

According to Drucker (1995) the collective knowledge residing in the minds of its employees, customers, suppliers etc. is the most vital resource of an organizations growth , even more than the traditional factors of production i.e. land, labour, and capital. This demonstrates that knowledge is the new critical strategic resource that is required by modern manufacturing enterprises. In 1998 the World Bank (world development report, 1998) explicitly identified knowledge as one of the major factors for development (Dalkir, 2005). The most important source of sustainable competitive advantage in an increasingly turbulent 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.

The ever increasing importance of knowledge in contemporary society calls for a shift in our thinking concerning innovation in business organizations, be it technical innovation, product or process innovation, strategic or organizational innovation (Alwis and Hartmann, 2008). Indeed, in a competitive market economy, entrepreneurs' ability to develop, transfer and manage knowledge constitutes the lifeblood of product development and manufacturing operations (Burns, Car and Datta, 20011). In overall, manufacturing enterprises must efficiently and effectively create, capture, and share knowledge to remain competitive, solve problems and exploit opportunities. Knowledge management can enhance the manufacturing enterprise fundamental ability to compete. O'Dell and Hubert (2011) KM supports IBM's five overarching strategies: grow the business base, manage profitability, set the industry bar for quality, compete based on competencies and develop brand leadership.

2.6 Institutionalization of Knowledge Management (IKM)

2.6.1 Information Technology (IT) 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, storage, and safe-keeping of the firm's knowledge resource (Mills and Smith, 2011). The role of IT infrastructure is important, because it enhances knowledge access, transfer and facilitates the knowledge sharing. Ray (2008) stated that, after identifying corporate knowledge, establish processes for sharing this information. Davenport et al. (1998) indicate two critical factors for the successful KM project, one is the establishment of broad information systems based on desktop computing and communication, and the second is the utilization of the network technology infrastructure such as the internet, lotus notes and global communication systems for effective transfer of knowledge. Kazemi and Allahyari (2010) points out that KM technologies and software application provide the right information to the right people at the right

time. Trepper (2000) good knowledge management processes integrate people and technology with collaboration processes to create a smarter and more competitive organization.

To maximize the value of knowledge, organizations must have appropriate information system infrastructure that facilitate sharing, transforming and capturing knowledge. Ajmal, Helo and Kekale (2010) a robust system of information technology facilitates the communication, collection, and re-use of knowledge in a project-based organizations. The knowledge management system should also facilitate communication and knowledge exchange across different organizational entities that share knowledge and experiences (Du Plessis, 2007). Information technology can increase knowledge transfer by extending the individual's reach beyond the formal communication lines (Alavi and Leidner, 2001). Knowledge already exists in organizations and is easily extracted by sharing best practices (Ray, 2008). To do this requires finding a way to quickly capture, store, and utilize critical processes and best practices to maintain a competitive advantage. A knowledge repository should be a one-stop shop for knowledge application (Dalkir, 2005). Knowledge repositories are usually intranets or portals of that serve to preserve, manage, and leverage organizational memory. Dalkir (2005) employees should be able to find out what they need in order to access, understand, and apply the cumulative experience and expertise of the organization.

Technology helps create repositories to store user's experiences and knowledge (Ray, 2008). The repository helps companies manage what they know and locate the knowledge when required. The repository is the foundation upon which a firm creates its family of information and knowledge products (Dalkir, 2005). Looking at what users need and how they search for information will help develop repositories to provide access to organizational expertise (Pemberton, 2004). KM programs can take advantage of emerging technologies and design innovative ways to enable sharing at teachable moments (when an individual is most receptive to learning something), with just enough detail, just in time, and just for that employee (O'Dell and Hubert, 2011).They also state that social computing tools are reinvigorating KM by making it easier for employees to participate in knowledge creation while showing them value of sharing with an online network of peers.

2.6.2 Management Support in Knowledge Management

Top management support is crucial to enable knowledge creation process, and this support means, in practice, that the appropriated resources are allocated and multidisciplinary teams are encouraged (Sanchez and Palacios, 2007). Getting senior management commitment to KM is critical to its success (Ray, 2008). It has to be a top-down approach because of the buy-in that is needed from the top managers who control access to most of the resources in the organization(Muganda-Ochara et al, 2008).The core role of top management is to support the initiatives and knowledge management plans on both the global and service lines. They have to create structures that facilitate and enhance knowledge creation. The management should provide strong support and commitment including incentives to engage in knowledge sharing. Von Krogh et al. (2011) leaders play a crucial role in establishing organizational conditions and infrastructure that enhances and facilitates knowledge management

Leaders are important in acting as role models to exemplify the desired behavior for knowledge management. Wong (2005), argues that they should for example, exhibit a willingness to share and offer their knowledge freely with others in the organization, to continuously learn, and to search for new knowledge and ideas. By doing so, (the researcher concurs) they can further influence other employees to imitate them and increase the propensity of employees' participation in knowledge management practices. According to Alwis and Hartmann (2008), the use and transfer of tacit knowledge will depend on the behavior of the management leaders as role models and to offer reward for imitation.

2.6.2.1 Alignment of Knowledge Management Strategy with Business Strategy

Plans in knowledge creation must be aligned with companies' strategies in the long-term, otherwise they would not progress (Sanchez and Palacios, 2007). Managers need to tie 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. In order to attach more significance to a KM strategy, it should support an imperative business issue of an organization (Wong, 2005). Alignment of knowledge management strategy with the business strategy in the dynamic business environment will make institutionalization of knowledge management more successful. O'Dell and Hubert (2011) knowledge management ought to be aligned with the organization's vision, mission and strategy. According to Dalkir (2005), knowledge management decisions should be based on who (people), what (knowledge), and why (business objectives), and save the how (technology), for last.

2.6.2.2 Chief Knowledge Officer (CKO) in the Organization Structure

An important aspect for institutionalization of KM is the development of an appropriate organizational structure that includes the position of CKO. Your organization will need a KM leader (O'Dell and Hubert, 2011). This person would lead the effort to determine your organization's knowledge needs and strategy. Coordination is required to bring together team members to share their best practices with each other (Ajmal, Helo and Kekale, 2010). Therefore the key element here is to have an office or unit to coordinate activities of KM in the organization. That office many KM experts is the office of Chief Knowledge Officer. Chauk and Snyman, in Squier and Snyman (2007) Knowledge Management requires an individual with specific knowledge and skills to champion the concept knowledge management and spearhead the enormous challenges to overcome inherent obstacles to the free flow of knowledge within an organization. Ray (2008) argues that a chief knowledge officer with responsibility for the political, strategic, and technical implementation of KM is required. This role can be done by someone already in the company such as the Chief Information officer or Chief technology Officer. Rusonow (2003) the CKO is primarily responsible for: formulating KM strategy, handling KM operations, influencing change in the organization and managing KM staff.

2.6.2.3 Measurement of Knowledge Management

A finely honed KM measurement system will help to: align KM with your organization strategy, determine progress, prioritize KM investments, and evaluate and communicate performance O'Dell and Hubert (2011). Successful knowledge management efforts should see improved productivity at employee level and at organizational level. Measurement is needed to demonstrate the value and worthiness of a Knowledge Management initiative to management and stakeholders (Wong, 2005). Such initiative like KM may just become another management fad, if left unmeasured. KM efforts need to be measured to ensure they are effective and aligned with an organization's overall strategy. Therefore the researcher subscribes to the idea that measurement is required because what is measured gets done. It should be linked to performance management in the organization. If people know that one aspect of the performance management is linked to knowledge sharing, they will certainly like to ensure that they do not get a low ranking on this dimension (Jain, 2005). Some companies like BP, Ernest & Young, KPMG and Hewlett Packard increasingly introduces formal performance reviews stipulating that employees are expected to capture valuable knowledge, archive it, share it, and use others' knowledge when they become aware of it themselves (Master, 1999). Therefore linkage with performance appraisal is critical.

Measurement enables management to track the performance and institutionalization of knowledge management in the company. Measurement ensures that management can track and manage their core asset, knowledge. O'Dell and Hubert (2011) ConocoPhillips's KM program linked knowledge sharing to business results on the four Gs: *give* (share your knowledge with others), *gather* (collect knowledge from colleagues and available resources), *grab* (be willing to ask questions and look externally for knowledge), and *guts* (lessons learned). As result, its number of KM success stories grew exponentially. Knowledge performance can be measured in either financial performance or non-financial measures. At Ernest & Young measures align with organizational goals, demonstrate improved performance, help manage risk, and how show a clear return on investment (ROI)

2.6.3 Organizational Culture

Only by changing organizational culture, can an organization gradually change the pattern of interaction between people, technologies, and techniques, because the core-competencies of an organization are entrenched deep into organizational practice (Bhatt, 2001). Culture is perhaps the most influential factor in promoting or inhibiting the practice of knowledge management (Davenport, De Long and Beers, 1998). Every organization's culture is distinctive, and this distinctive organizational culture differentiates members of one group and the other. Chase (1997) in Ajmal, Helo and Kekale (2010) indicates that, many studies have contended that culture is a key factor in determining the effectiveness of knowledge sharing. This therefore means that corporate culture affects the successful institutionalization of KM initiatives. Owing to the highly influential nature of a culture to the success of KM, Davenport et al. (1998) asserted that companies should ensure that their KM initiatives fit into their organizational culture, or else they should be prepared to change it. The growth of knowledge requires supportive environment, favorable culture. One of the issues of sharing knowledge in an organizational context is related to the right corporate environment and conditions (Riege, 2005).

There is need to foster an innovative culture in which individuals are constantly encouraged to generate new ideas, knowledge and solutions (Wong, 2005). These employees should be allowed to question the status quo and empowered to come up with solutions. Goh (2002) suggests a culture which emphasizes problem seeking and solving. With a change in culture, values, and improved mutual trust, sharing creates a learning culture that feeds itself in terms of improving knowledge sharing – giving away, holding in common, and improving bonds within the firm (Awad and Ghaziri, 2007). A company needs to create a culture of sharing and continuous improvement. Changes in corporate culture are also regarded as necessary for implementing knowledge management (Bhatt, 2001).

2.6.3.1 Knowledge Sharing Culture

An important factor in knowledge management could also be about to what extent are employees familiar with the idea. According to (Ajmal, Helo and Kekale, 2010), familiarity with KM is essential for the success of KM initiatives; indeed, if employees are not familiar with the notion and practices of KM, it is almost inevitable that the firm's KM initiatives will fail. In general, a culture supportive of KM is one that highly values knowledge and encourages its creation, sharing and application (Wong, 2005). Developing such a culture is very critical to enhance knowledge sharing. Knowledge sharing needs a culture and a set of behaviors in which people will share knowledge as part of their day-to-day activities (Ling, et al, 2009). One way according to (Ray, 2008) is to show how knowledge sharing can improve not only company profits but also get an employee recognized. Learning is the process by which knowledge comes into being and is therefore intimately associated with KM (Zack, McKeen and Singh, 2009). Companies therefore that are keen on knowledge sharing should foster an environment and culture that support continuous learning.

2.6.3.2 Rewards and Incentives

Things that are rewarded get accomplished and behaviours that are rewarded are repeated (Verma, 2009). It follows therefore that employee rewards should be aligned to the knowledge management efforts. If individuals are not motivated to practice knowledge management, no amount of investment infrastructure and technological intervention will make it effective (Wong, 2005). The time needed to collaborate with others has to be recognized and rewarded (O'Dell and Hubert, 2011). Therefore, one of the factors in institutionalization of KM is to develop the right incentives and rewards to encourage employees to share and contribute to the knowledge base. Reward structures and performance need to be created that benefit those individuals who contribute to and use a shared knowledge base (Lee and Yang, 2000).

Efforts to discover, use and share professional intellect are more effective when people are consistently recognized and rewarded for their understanding of the entire knowledge process and

for using their creativity and intuition at work (Ray,2008). The reward system should clearly state expectations from each employee and the benefits of knowledge sharing. Failing to reward key knowledge holders results not only in them eventually leaving the firm, but also absenteeism, disruptive office politics, disengagement and poor productivity (Whelan and Carcary, 2011). Using motivators such us bonuses, percentage of company profits, peer recognition, special titles and challenging assignments can be a positive influence on employees (Ray, 2008). Organizations that value their employees for what they know and reward employees for sharing that knowledge create a climate that is more conducive to KM (Zack, McKeen and Singh, 2009).

2.6.3.3 Trust, Teamwork and Openness

Wong (2005) states that without a high degree of mutual trust, people will be skeptical about the intentions and behaviors of others and thus withhold their knowledge. Therefore there is need to develop a culture of trust between individuals and teams that facilitate proactive and open knowledge sharing. Managers are required to create an atmosphere of trust, team spirit and learning climate for improving contributor's productivity (Ray, 2008). Teamwork is the extent to which employees perceive their work group operating as a team, where trust is high and people are treated in a fair and consistent manner (Glaser, Zamanou and Hacker, 1987). Teams need to be empowered to create and share knowledge. Trust represents the climate in which people trust each other. Trust and openness between sender and receiver will often result in automatic absorption which must be backed by the whole organization structure of the firm (Lehner and Lehmann, 2004). A regular training on themes like trust building, collaborative building, team building can go a long way in overcoming barriers related to lack of trust, faith and fear (Riege,2005).

2.6.4 Knowledge management process

The knowledge value chain consists of KM infrastructure and the KM process's activities and knowledge performance (Lee and Yang, 2000). Firestone and McElroy (2004) define knowledge processes as social processes through which organizations make and share their knowledge.

Bixler (2002) points out that KM processes should be incorporated into employees daily work activities and integrated into business processes so that they become common practices in an organization and allow seamless flow of knowledge in the business life. Nonaka and Von Krogh (2009), states that organizational knowledge creation is the process of making available and amplifying knowledge created by individuals as well as crystallizing and connecting it to an organizations knowledge system. New knowledge always begins with the individual (Nonaka, 1991). He illustrates it that: "A brilliant researcher has an insight that leads to a new patent. A middle manager's intuitive sense of market trends becomes the catalyst for an important new product concept. A shop-floor worker draws on years of experience to come up with a new process innovation. In each case, an individual's personal knowledge is transformed into organizational knowledge valuable to the company as a whole. Making personal knowledge available to others is the central activity of the knowledge creating company".

Knowledge creation is indeed a spiral, it continues at all levels in the company as illustrated above. This process encompasses the aspects of indentifying and gathering useful information, leveraging and encompassing, sharing it with others through the whole organization, storing the knowledge in a repository and enabling employees to retrieve organizational knowledge (Ling, et al, 2009). The distinction between tacit and explicit knowledge suggests four basic patterns for creating knowledge in any organization (Nonaka, 1991). These are from tacit to tacit, explicit to explicit, tacit to explicit and explicit to tacit. They exist in a dynamic interaction. Nonaka and Takeuchi (1995) suggest that, knowledge is created by middle managers, who are often leaders of a team or task force, through a spiral conversion process involving both at the top and the front-line employees. The process puts middle managers at the very center of knowledge creation, positioning them at the intersection of the vertical and horizontal flows of information within the company. To expand its ``collective knowledge'', an organization should make every effort in developing meaningful interactions between the communities of practice (Bhatt, 2001). Organizational knowledge indeed resides in the interactions between individuals. According to Nonaka et al. (2000) there are four modes of knowledge conversion: Socialization (from tacit knowledge to tacit knowledge), externalization (from tacit knowledge to explicit knowledge), combination (from explicit knowledge to explicit knowledge), and internalization (from explicit knowledge to tacit knowledge).

Knowledge is created through socialization, externalization, combination and internalization. The interaction between tacit and explicit knowledge is expressed in four distinct modes of knowledge, introduced to the creation sciences as the SECI process (socialization-externalization-combination-internalization). Arling and Chun (2011) suggest that new knowledge creation is best supported through mature KM systems that include all four modes of creation: socialization, externalization, combination and internalization. An individual can acquire tacit knowledge directly from others through observation, imitation, and practice; being the key to acquire this type of knowledge some form of shared experience (Sanchez and Palacios, 2007).

Human beings have the capacity to elicit and enrich existing knowledge while simultaneously receiving and interpreting different forms of data and information through various knowledge embodiment receptacles (Hafeez and Abdelmeguid, 2003). They further state that, the challenge for a company is to develop appropriate policies and procedures in order to reflect knowledge flywheel effects, where the knowledge enrichment process is taking place via the interchange between tacit and explicit knowledge, and knowledge codification is in operation to enhance 'organizational memory'. The best way to retain valuable knowledge is to identify intellectual assets and then to ensure that legacy materials are produced and stored for future reuse. This tangible by-products need to flow from individual to individual, between members of a community of practice, and back to the organization itself, in the form of lessons learned, best practice, and corporate memory (Dalkir,2005).

2.6.4.1 Lessons Learned

A lessons learned is the knowledge acquired from an innovation or an adverse experience that causes a worker or an organization to improve a process or activity to work safer, more efficiently, or with higher quality" (Bickford, 2000). Companies therefore, need to review their successes and failures, assess them systematically and record the lessons learned in a form that employees find open and accessible. Lessons learned were originally conceived of as guidelines, tips, or checklist of what went right or wrong in a particular event (Stewart, 1997). Lessons learned systems have been deployed in many military, commercial and government organizations

to disseminate validated experiential lessons (Weber, Aha and Becerra-Fernandez, 2001). Lessons learned help organizations avoid making the same mistakes again and again.

De Long and Fahey (2000) point out that capturing, evaluating and learning lesson from past mistakes affects best practices in the future. Accessing lessons learned by others as well as best practices helps to avoid firms from repeating mistakes and rework. O'Dell and Hubert (2011) points out that lessons-learned approach can help your organization to: avoid redundancy and reinvention, reuse past designs and experiences, and build on lessons, improve the quality of products and services while reducing errors, rework, and cycle time, standardize best practices and as a result , improve productivity and efficiency and reduce operating costs, enhance learning proficiency and professional development, reduce time to competency, shorten learning curves, and integrate training and learning initiatives and build a knowledge sharing culture.

2.6.4.2 Communities of Practice (CoP)

Talking to other people provides a highly valuable learning activity that is primarily a tacit-tacit knowledge transfer (Dalkir, 2005). Communities of practice (CoP) are groups of people who share a passion for something that they know how to do, and who interact regularly in order to learn how to do it better (Wenger, 2004). He maintains that, practitioners, the people who use knowledge in their activities are in the best position to manage this knowledge. Knowledge creation and dissemination in CoP is based on common experiences in work related situations (Pavlin, 2006).

Communities of practice provide a potentially useful practice based framework for constructing work collaborative learning and promoting engagement with local and professional groups and communities (Andrew, Tolson and Ferguson, 2008). Communities of practice are social structures that focus on knowledge to be placed in the hands of practitioners (Wenger, 2008). CoP helps in connecting employees to get answers at a teachable moment, collecting content important to a community of employees, retaining content when employees leave the community,

and keeping content fresh by capturing ongoing dialogue (O'Dell and Hubert, 2011). Communities are important because they nurture and harness the raw material of this millennium, knowledge. They are indeed knowledge creation and sharing networks, connecting with other knowledgeable people and information. Awad and Ghaziri (2007) points that for companies to make use of human experience and intelligence, they must provide a sharing environment, empower people with tools, and create a climate for learning and testing new ways of doing business.

What can communities of practice do for your company? O'Dell and Hubert (2011) through their research found out that CoPs can: Provide the means to translate local know-how into global, collective knowledge, help employees exchange ideas, collaborate, and learn from one another, transcend boundaries created by work flow, functions, geography, and time, enable speed and innovation needed for marketplace leadership, integrate into the fabric of your organization's core work and value chains and successfully align with formal governance structures

2.6.4.3 Transfer of Best Practices

Best practices are descriptions of previously successful ideas that are applicable to organizational processes (Weber, Aha and Becerra-Fernandez, 2001). Although you can't manage the knowledge in people's heads, you can capture, enable and transfer knowledge and best practices (O'Dell and Hubert, 2011). Sharing learning, insight and best practice is important in capturing organizational memory. Knowledge exists at various places such as in the individual, in organizational routines (or processes), embedded in formal guidelines, or in one part of the organization (Christensen, 2007). The emphasis, however, is much on the transfer of knowledge rather than best practice. This is because knowledge being shared – or supposed to be shared – takes on several more forms than being a best practice (Christensen, 2007).

Lubit (2001) points out that offering workers the opportunity to observe 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 supports innovation and learning in the organization hence there is need to institute KM practices. There is need for commitment to learning through sharing best practices for continuous improvement. Knowledge managers should identify best practices and describe them in pages posted on the company's corporate intranet. The ability to rapidly identify and adopt superior practices remains an important source of competitive advantage (O'Dell and Hubert, 2011). Reusing successfully demonstrated practices can lead to shorter cycle times, higher customer satisfaction, better decisions, reduced risks and lower costs. Dalkir (2005) argues out that, the chief knowledge officer of Price Water house coopers has put in place strategies where employees can find repository of best practices, consulting methodologies, tax and audit rules, news services, online training, directories of experts and links to specialized sites for various industries or skills.

2.7 Challenges in Institutionalization of Knowledge Management

Companies wishing to make their KM strategy and integrated knowledge sharing strategy a success need to pay attention to a large number of potential knowledge-sharing barriers (Riege, 2005). In institutionalization of knowledge management in organizations, there are various challenges ranging from individual, organizational and technological. At individual level, some challenges or barriers according to Riege (2005) are lack of time to share knowledge, apprehension of fear for job security, low awareness on the benefits of knowledge sharing, dominance in sharing explicit knowledge over tacit knowledge, use of strong hierarchy/formal power, lack of trust in people, age differences, lack of social network, difference in education levels, fear of not receiving recognition, lack of trust in knowledge source accuracy and cultural differences. The major problems that occur in KM usually result because companies ignore the people and cultural issues (Dalkir, 2005).

Riege (2005) gives the following as challenges at organizational level: unclear or missing integration between KM initiatives into company's goals, lack of leadership and managerial direction, lack of transparent rewards and recognition system, unsupportive corporate culture, low priority on knowledge retention on experienced staffs, shortage of appropriate infrastructure,

restricted communication and knowledge flows, restrictive work environment, hierarchical organizational structure and size of business unit. According to Dalkir (2005), incentives remain one of the more important challenges facing knowledge management today. To show its commitment for sharing knowledge, an organization should foster the employee's willingness to share and contribute to the knowledge base. According to Lee and Yang (2000), this may be the most difficult obstacle to overcome. Riege (2005) also highlights potential technological barriers which includes the following: lack of integration of IT systems and processes, unrealistic expectations of employees as to what technology can do and cannot do, mismatch between individual needs requirements and integrated IT systems and processes, reluctance to use IT systems due to lack of familiarity and experience with them and lack of training regarding familiarity of new IT systems and processes.

2.8 Theoretical Framework

The emergence of knowledge management as a business strategy has made scholars and policy makers interested in frameworks on how to institutionalize knowledge management. Sunassee and Sewry (2011) proposed framework consists of three main interlinked components: Knowledge Management of the organization, Knowledge Management of the people and Knowledge Management of the infrastructure and processes. They further state that the organization needs to achieve a balance between these three subsystems in order to achieve a successful Knowledge Management effort. This model focuses on aligning the knowledge management strategy of the organization to the overall business strategy of the organization. The culture and managing the culture change when implementing knowledge management are also of utmost importance.

 The focus according to (Sunassee and Sewry, 2011) should be on the importance of the employees of the organization, and their contribution towards a successful knowledge management effort. They further state that there should be concerted effort to make people feel part of the change in institutionalization of KM. There is need also to encourage individual learning and innovative thinking with employees. Rewards are given to those staff that produces

results. Finally, according to (Sunassee and Sewry, 2011) the infrastructure and business processes of the organization cannot be neglected when implementing knowledge management. They highlight the importance of hardware and software that will facilitate employees to share and disseminate knowledge throughout the organization. The framework is as shown below.

2.9 Conceptual Framework

The conceptual framework is presented as shown below. It shows the independent variables on the left side, intervening variables in the middle and the dependent variable on the right side. The conceptual framework shows the set of factors (independent variables) that affect institutionalization of knowledge management (outcome) in the manufacturing enterprises.

Organizational Culture
- Knowledge sharing culture
- Rewards and incentives
- Climate of openness & trust

Management Support
- Aware and promotes
- Strategic planning
- CKO in Org. Structure
- Link to financial results

Knowledge Process
- Best practices
- Lessons learned
- COP

Information Technology
- computers
- Intranet
- E-mail

- Government policies & strategies e.g.

- COYA awards requirements
- Dynamic Business environments

Institutionalized Knowledge Management

- Existence of business need for KM
- Management support
- KM infrastructure
- Formalized process of transferring best practices, lessons learned
- COP

Independent Variables   Intervening variables   Dependent Variable

Figure 1: Conceptual framework.

2.9.1 Organizational Culture

In ideal situation, a culture supportive of KM is one that highly values knowledge and encourages its creation, sharing and application. The aspects of culture here includes: knowledge sharing culture, rewards and incentives, trust, teamwork and training and empowerment.

2.9.2 Management Support

The top management should provide strong support and commitment for institutionalization of knowledge management to take place. The aspects to be looked at includes: Strategy alignment, CKO and Measurement.

2.9.3 Information Technology Infrastructure

To maximize the value of knowledge, organizations must have appropriate information technology infrastructure that facilitate sharing, transforming and capturing knowledge. The indicators here will be availability of intranet, knowledge repository and other communication facilities.

2.9.4 Knowledge process

The interaction between tacit and explicit knowledge based on the SECI model affect the institutionalization of knowledge management. The aspects to be looked at includes: best practices, lessons learned and community of practice.

2.9.5 Outcome

The indicators for institutionalized knowledge management will be the following: Existence of business need for KM, Management support, Knowledge Management infrastructure and formalized process of transferring best practices, lessons learned and existence of community of practices.

2.9.6 Intervening Variables

The researcher considers that Government policies and strategies such as Vision 2030, COYA awards requirements and dynamic business environments as intervening factors in institutionalization of knowledge management. These are factors beyond the control of the studied organizations.

CHAPTER 3

REASEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research design and data collection methods used by the researcher in the study. It discusses aspect such as the research design, study population, data collection instruments, data collection procedure and data analysis.

3.2 Research Design

Research design is the conceptual structure within which research is conducted; it contains the blue print for the collection, measurement and analysis of data (Kothari, 2004). This study used descriptive design. Descriptive research determines and reports the way things are (Mugenda and Mugenda, 2003). This design was chosen because it helps to gain more information about the dependent (Organizational Culture, Management Support, Information technology infrastructure and Knowledge Process) and independent (institutionalization of Knowledge Management) variables of this study. The data provided through this design sought to establish the factors that affect institutionalization of Knowledge Management.

3.3 Target Population

The target populations in this study were the sixty (60) Heads of Departments and Deputy Heads of Departments in the three selected manufacturing enterprises, twenty (20) from each organization, that is, ten (10) heads of departments and ten (10) deputy heads of department in each organization. The reason is because they are in position to influence and initiate Knowledge Management practices in their organizations. Middle managers are at the centre of knowledge creation (Takeuchi, 1995). They are in a position to influence the creation and maintenance of a knowledge infrastructure. These companies are 'Plastic Container Enterprise, 'Edible Oil Enterprise and 'Soft Drink Enterprise'. These companies were purposively selected because they had participated in the Company of the Year Award (COYA) and had Knowledge Management

practices in their operations. The researcher took a census of the sixty (60) senior managers (Heads of Department and Deputy Heads of Departments) from the organizations in charge of the following departments: human resource, ICT, Finance, marketing, Procurement, Production, public relations, administration, engineering and operations. Kothari (2004) a complete enumeration of all items in the population is known as a census inquiry.

3.4 Data Collection Instrument

Self administered questionnaires comprising four sections were used to collect data for the study. Part I collected data on general information, Part II on current status of KM, Part III on factor affecting institutionalization of KM and Part IV on challenges of institutionalization of KM. In this study a multiple of questions used 1- 4 Likert- type scale, with 1 denoting "strongly disagree" and 4 denoting "strongly agree" and 1-4 Likert-type scale, with 1 denoting "strongly not important" and 4 denoting "very important" were used to measure respondents' agreement with the concepts under investigation. Majority of the questions were closed ended to minimize variability of response. However, some questions were open ended for respondents to voice their opinion or give suggestions. There were 30 questions in the instrument with various questions having multiple parts.

3.4.1 Reliability Test

Mugenda and Mugenda (2003) reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials. The questionnaires were administered to three (3) respondents who were conveniently selected from the employees of a manufacturing enterprise. The results of the pilot study were used to test reliability of the instrument. Reliability analysis was used to measure the consistency of the questionnaire. The instrument was subjected to a reliability test to measure the degree to which the instrument yields consistent results. Field (2009) the Cronbach's α indicates the overall reliability of a questionnaire and values around 0.8 are good (or 0.7 for ability tests and such like).The recommended acceptable limit is 0.5 (Field, 2009). A Cronbach's alpha test of the instrument

gave α = 0.658 which was interpreted as acceptable. This meant the instrument was reliable hence the study proceeded to the data collection stage.

3.4.2 Validity Test

Babbie (2007) validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration and the face validity is that quality of an indicator makes it seem a reasonable measure of some variable. The instrument was tested for face validity and internal validity. The validity test shows the extent to which a set of questions represents the concepts under study. For face validity, five (5) experts were approached for consultation, two lectures in the faculty of Commerce and three business managers in the manufacturing industry. Based on the opinion and views of the five, the questionnaire was adjusted accordingly.

3.5 Data Collection

Primary data was collected from the senior managers of the three selected companies by use of self administered questionnaires. The respondents were informed that the objective of the research was to gather information about factors influencing institutionalization of knowledge management. Respondents were assured that the information they provided would be treated with confidentiality. The researcher delivered the questionnaires in person to respondents in June, 2011. The respondents were reached and contacted at their place of work. Twenty questionnaires were given to each organization and the questionnaires were marked in order to make it easy to know which questionnaires have been received and from which enterprise. This is because the researchers target population was 60 respondents, ten (10) heads of departments and ten (10) deputy heads of department in each organization. The researcher received 19 questionnaires from the Plastic Manufacturing Enterprise, 14 from the Soft Drink Enterprise and 20 from Edible Oil Enterprise. This represents 88.3% of response, seven (7) questionnaires were not returned.

3.6 Data Analysis

In this study, data analysis was done using Statistical Package for the Social Sciences (SPSS) software. The researcher coded all the questions and entered all the 53 (out of 60) received questionnaires into the SPSS. The data was then cleaned to remove any variations between the transcribed data and the data in the questionnaire. SPSS was used to generate descriptive statistics including; cross tabulation and measures of central tendencies. SPSS was also used to generate inferential statics in the form of factor analysis. Using factor analysis the study sought to extract the critical factors that influence institutionalization of knowledge management. Tables pie charts, and bar charts were used in data presentation.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The overall objective of this study was to investigate factors affecting institutionalization of Knowledge Management in manufacturing enterprises in Kenya: a case of selected companies. This chapter presents the analysis of results of the study. The presentation was based on the following research questions: what is the current status of knowledge management institutionalization in manufacturing enterprises in Kenya, what are the factors that influence institutionalization of knowledge management, and what are the challenges in institutionalization of knowledge management? The findings of this study are presented in tables and figures.

4.2 General Information

4.2.1 Response Rate

The data collection instruments which were questionnaires were sent to 60 respondents. However, out of the 60 respondents, 53 questionnaires were returned. 7 questionnaires were not returned and this the researcher attributes to the unwillingness of some respondents to fill the questionnaires. The responses rate therefore was 88.33%. The researcher considered this response rate to be adequate representation which corroborates with Mugenda and Mugenda (2003) which states that a response rate of 60% is good and response rate of 70% and over is very good.

4.2.2 Age of the respondents

The respondents were asked to indicate their age. The data findings are presented in table 4.2.1 below.

Table 1: Age of the respondents

Age	Percent N=53
20-30	24.5
31-40	32.1
41-50	35.8
Over 50	7.5
Total	**100**

Table 1 shows that 35.8% of the respondents are aged between 41-50 years, 32.1% are aged 31-40, and 7.5% are over 50 years. This shows that the majority of the respondents were in the age bracket of 41 and 50 years. This implies that these enterprises have relatively older employees and these organizations should put in place strategies to capture tacit knowledge in terms of experience, learning, interaction and technical knowledge.

4.2.3 Cross tabulation of Years of Service Worked and Intention to Change employer

The researcher cross tabulated years of service worked and change of employer.

Table 2: Cross Tabulation of Years of service Worked and Intention to change employer

Years of service	Change of Employer in the next 1-5 Years			
	Yes	**No**	**Not sure**	**Total**
0-5	35.7%	28.6%	35.7%	100.0%
6-10	53.3%	26.7%	20.0%	100.0%
11-15	42.9%	28.6%	28.6%	100.0%
Over 15	50.0%	50.0%	.0%	100.0%
Total	**42.3%**	**28.8%**	**28.8%**	**100.0%**

Table 2 shows that respondents who have worked 6 -10 years, 53.3% said "Yes" they intent to change employer, while 50% of the respondents who have worked over 15 years intent to change employer and 50% said "No". It also shows that overall, 42.3% of the respondents' intent to

change employer in the next 1-5 years, while 28.8% said "No" and 28.8% of the respondents said they are "Not Sure" whether to change their employer in the next 1-5 years. This implies that the respondents with more experience (6-10 years and over 15 years) are likely to move in the next 1-5 years. Managers and other staff leaving the organization and have experience according to O'Dell and Hubert (2011) may go with organizational and technical knowledge on key processes and competencies.

4.2.4 Expertise of the Respondents

The respondents were asked to state their major area of expertise.

Table 3: Expertise of the respondents

Description of expertise	Percent N=53
Production	24.5
Management	9.4
Administration	5.7
Human resource management	9.4
Accounting & finance	9.4
ICT	17
Procurement	5.7
Sales & marketing	7.5
Public relations	3.8
Operations	1.9
Catering	1.9
Engineering	3.8
Total	**100.0**

Table 3 shows that 24.5% of the respondents indicated production as their major area of expertise while another 17% indicated ICT as their area of expertise. Management, human resource and accounting and finance were 9.4% respectively. The table shows that other respondents indicated: engineering, catering, operations, public relations, procurement, marketing and administration.

This shows that there is no respondent who indicated knowledge management as an area of expertise. This implies that the respondents represent diverse areas of specialization and expertise.

4.3 Status of Knowledge Management

4.3.1 The Understanding of Knowledge Management

The respondents were asked to indicate their understanding of knowledge management.

Table 4: The understanding of knowledge management

The Understanding of knowledge management	Percent N=53
Developing and utilizing knowledge to increase organizational performance	50.9%
Creating, sustaining, sharing and making the best use of knowledge to enhance org. performance	49.1%
Management Fad that would be forgotten	0%
Total	**100.0**

Table 4 shows that 50.9% of the respondents described KM as developing and utilizing knowledge to increase organizational performance and to meet strategic goals while 49.1% described as "It's about creating, sustaining, sharing and making the best use of available knowledge to enhance organizational performance. None of the respondents described KM as a management fad that would soon be forgotten. This implies that all the respondents understand and appreciate knowledge management.

4.3.2 The Need for Knowledge Management in Business

The respondents were asked whether need for knowledge management in their business operations has been identified in their company.

Table 5: The need for knowledge management in business

Response	Percent N=53
Yes	94.3
No	5.7
Total	100.0

Table 5 shows that 94.3% of the respondents indicated a business need for knowledge management has been identified, while 5.7% said no. This implies that the majority of the respondents agreed that their company have a business need for knowledge management.

4.3.3 Recognition of Knowledge as an organizational Asset

The respondents were asked whether their company recognize knowledge as one of the asset base.

Figure 2: Recognition of Knowledge as an organizational Asset
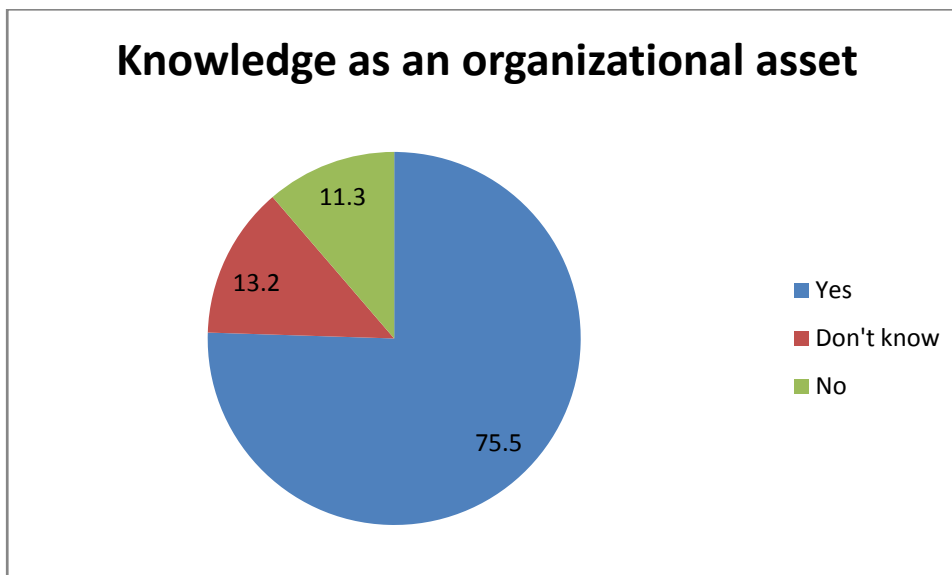
Figure 2 shows that 75.5% of the respondents recognize knowledge as one of the organizational asset base, while 13.2% don't know whether their company recognizes knowledge as an organizational asset. This implies that the majority of the respondents agreed that knowledge is one of the organizational assets.

4.3.4 Knowledge Management Policy

The respondents were asked whether they have a knowledge management policy in their companies. 57.7% of the respondents said they do not have a policy while 42.3% said they had a policy. This shows that majority of the respondents believe there was no explicit policy on knowledge management.

4.3.5 Cross Tabulation of Recognition of Knowledge as an Organizational Asset and the State of KM implementation

The researcher sought a cross tabulation of recognition of knowledge as an organizational asset and the state of KM implementation.

Table 6: Cross Tabulation of recognition of knowledge as an organizational asset and the state of KM implementation

Recognition of Knowledge as an organizational Asset	State of KM implementation			
	Implemented KM	Planning to Implement KM	Not planning to implement KM	Total
Yes	47.2%	50.0%	2.8%	100.0%
NO	.0%	25.0%	75.0%	100.0%
Don't Know	28.6%	42.9%	28.6%	100.0%

Table 6 shows cross tabulation of recognition of knowledge as one of the organizational asset base and state of KM implementation. It shows that those respondents who indicated "Yes" they recognize knowledge as one of the organizational asset base, 50% of them indicated planning to implement KM and 47.2% indicated they have implemented KM. This implies that knowledge is recognized as an organizational asset and those that have not implemented are planning to implement knowledge management.

4.3.6 Reasons for Embracing Knowledge Management

Respondents were given possible reasons why their companies are embracing knowledge management and asked to describe the extent of the importance.

Table 7: Reasons for embracing knowledge management

Reasons for Embracing KM	Mean 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 7 shows that the mean for growth of business and retention of market share is 3.6226, improving quality in production is 3.5283, create and sustain strategic competitive advantage is 3.4906, and nurturing creativity and innovation is 3.4528, while for the other reasons, all the mean scores were 3.0189 and above. Nurturing creativity and innovation comes at position four (4). This means that the majority of the respondents believe that growth of business and retention of market is the major reason why they are embracing knowledge management, followed by improving quality in production and to create and sustain strategic competitive advantage respectively. This shows a high degree of agreement from the respondents (the variables were measured on 4 point Likert scale where 4 denoted "very important", 3 denoted "important", 2 denoted " not important" and 1 denoted "strongly not important").

4.4 Factors Influencing Institutionalization of Knowledge Management in the Manufacturing Enterprises

4.4.1 Factor Analysis

The second objective of this study was to establish factors that influence institutionalization of knowledge management in the manufacturing enterprises. Using exploratory factor analysis (EFA) and in particular principal component analysis (PCA) and Varimax with Kaiser Normalization rotation method, the study identified the critical factors that influence institutionalization of KM.

As a pretest to EFA, a Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) was undertaken. The KMO statistics should be greater than 0.5 as a bare minimum (Field, 2009).The KMO statistics vary between 0 and 1 (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. Pallant (2010) suggests that Bartlett's Test Sphericity value is significant if p≤ 0.05. A value close to Zero (0) shows high variation amongst the variables and that factor analysis might not be possible. Table 8 shows KMO statistics of 0.789 which is close to 1 and Bartlett's Test is significant with a p=0.000 and hence the study could proceed to factor analysis.

Table 8: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.789
Bartlett's Test of Sphericity	Approx. Chi-Square	69.416
	df	325.000
	Sig.	0.000

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 of < 1, were not considered because they account for less than the variations explained by a single variable. The unrotated solution had seven components with

15 of the variables loading onto component one. The second component was explained by 3 variables and components three and four were explained by only 2 variables each, while the remaining components were each explained by only one variable. In order to explain the components better, the study used Varimax with Kaiser Normalization rotation method. Table 9 below shows the results of the rotated solution.

Table 9: 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.

From Table 9, the Varimax with Kaiser Normalization rotation method resulted in six components being explained. Component 1 is now 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 to component 1 were: the organization has ways to link knowledge to financial results, allocate resources towards increasing knowledge, management is aware of KM and promotes, climate of openness and trust among employees, tacit knowledge is valued and transferred by use of CoP, 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.

Component 2 is explained by computers representing the greatest variations (0.8502) and document management (0.7764) and key element in strategic planning exercises (0.5044). Component 3 is explained by social media with the highest variations of 0.8548, followed by Knowledge management software at 0.6500, Library or resource centre at 0.5230 comes third. In component 4, intranet represents the greatest variation at 0.8496, followed by internet at 0.7504 and appointed leader who leads knowledge management initiatives 0.5224 comes third in this category. This implies that component one has more variables that influence institutionalization of knowledge management

Table 10 displays the factor loadings and factor interpretation.

Table 10: Factor Interpretation

Component	Variables	Factor Loadings	Factor
1.	Employees are evaluated for contributing to organizational knowledge	0.8736	Organizational Practices
	Recognition and rewards	0.8584	
	Environment to share ideas, experiences, successes and failures	0.8257	
	Link knowledge to financial results	0.8005	
	Allocates resources towards increasing knowledge	0.7935	
	Management is aware of KM and promotes	0.7649	
	Climate of openness and trust	0.7443	
	Tacit knowledge is valued and transferred by use of CoP	0.6571	
	Best practice transfer	0.6504	
	Use of knowledge repositories	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	
	Encouraging knowledge sharing among employees	0.5406	
2	Computers	0.8502	Technological Infrastructure
	Document management	0.7764	
3	Social media	0.8548	
	Knowledge management software	0.6500	
	Library or resource centre	0.5230	
4	Intranet	0.8496	
	Internet	0.7504	
5	Data warehousing for example data banks	0.7478	
	Value of customer's input and employee interaction (CRM)	0.6891	
6	E-mails	0.8113	

Component 1 is explained to a great extent by the variable; employees are evaluated and compensated for contributing to organizational knowledge with a factor loading of 0.8736, followed by recognition and rewards with the factor loading of 0.8584 and environment to share ideas, experiences, successes and failures with a factor loading of 0.8257. The other variables that loaded to component 1 were: link knowledge to financial results, allocate resources towards increasing knowledge, management is aware of KM and promotes, climate of openness and trust exists among employees, tacit knowledge is valued and transferred by use of CoP, effective internal procedures for best practice transfer, use of knowledge repositories, the company has formalized the process of transfer of lessons, knowledge repository, key element in strategic planning exercises, and encouraging knowledge sharing among employees. The 14 variables were identified as the factor *organizational practices*. Component 2 is explained by the variable computers with factor loading 0.8502 and document management with factor loading of 0.7764. These variables were identified as the factor *technological infrastructure*. Component 3 is explained by social media having factor loading of 0.8548, knowledge management software has factor loading of 0.6500 and library or resource centre with factor loading of 0.5230. Others are intranet (0.8496), internet (0.7504), data warehousing (0.7478), CRM (0.6891) and e-mails (0.8113). These were also identified as the factor *technological infrastructure.*

The Rotated Component Matrix has revealed that the 25 variables that mapped onto 6 components in Table 9 have been decomposed into 2 factors: organizational practices and technological infrastructure as compared to the conceptual framework which had suggested four factors; organizational culture, management support, knowledge process and information technology. Organizational culture, management support and knowledge process together formed a new construct, organizational practices. Table 12 shows 10 variables that mapped onto factor information technological infrastructure which was interpreted as the construct technological infrastructure.

4.4.2. 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. In this study organizational practices and technological infrastructure have the greatest influence on institutionalization of KM according to EFA.

4.4.2.1 Validity Test for Factor 1(Organizational Practices)

Table 11 shows the Cronbach's alpha of the various variables in factor 1. It shows that all variables have Cronbach's Alpha of 0.938 and above with knowledge repository having the highest Cronbach's alpha of 0.945, which means they are acceptable. This is because it is above the threshold of the recommended figure of 0.500 hence the results meet the requirements of internal validity.

Table 11: Validity Test for Organizational Practices

Organizational Practices Variables	Cronbach's Alpha
Employees are evaluated and compensated for contributing to development of organizational knowledge	.940
Recognition and rewards	.940
Environment to share ideas, experiences, successes and failures	.941
Link knowledge to financial results	.937
Allocates resources towards increasing knowledge	.938
Management is aware of KM and promotes	.938
Climate of openness and trust	.940
Tacit knowledge is valued and transferred by use of community of practice	.942
Best practice transfer	.940
Use knowledge repositories	.944
The company has formalized the process of transfer of lessons learned	.943
Knowledge repository	.945
Key element in strategic planning exercises	.941
Encouraging knowledge sharing among employees	.942

4.4.2.2 Validity Test for Factor 2 (Technological Infrastructure)

According to table 12, the Cronbach's Alpha of the 10 variables that loaded on the factor technological infrastructure are all above 0.500 and are hence acceptable. This means the variables in this construct met the requirements of internal validity test. The highest Cronbach's alpha was the variable, "We value customer's input and employee interaction (CRM)" where α = 0.710.

Table 12: Validity Test for Technological Infrastructure

Technological Infrastructure Variables	Cronbach's Alpha if Item Deleted
Computers	.669
Document management	.665
Social media	.653
Knowledge management software	.674
Library or resource centre	.668
Intranet	.647
Internet	.624
Data warehousing e.g. data banks	.676
We value customer's input and employee interaction (CRM)	.710
e-mails	.645

Table 13 below shows that the overall Cronbach's alpha for factor 1 is α = 0.945, while the overall Cronbach's alpha for factor 2 is α =0.688. The individual Cronbach's alpha coefficients of the construct (in table 11 and 12 above) were both above the 0.500 threshold hence acceptable as per the requirements of internal validity.

Table 13: Summary of the Validity Test of Study Constructs

Factor (Construct)	No. of Items	Overall Cronbach's Alpha
1. Organizational Practices	14	0.945
2. Technological Infrastructure	10	0.688

Table 11 further shows that 14 variables under factor 1 were very coherent hence credible in explaining the first construct (organizational practices). These results further show a high collinearity among the 14 items as proven by α = 0.945 which is close to 1. The 10 items under factor 2 (table 12) were equally very coherent in explaining the second construct (technological infrastructure).

The factor analysis has established that there are two critical factors that influence institutionalization of knowledge management in the manufacturing enterprises: these are organizational practices and technological infrastructure. Using factor loadings, the study further established that changes in organizational practices had a greater influence in the process of institutionalization of knowledge management. This agrees with Dalkir (2005) who argues that knowledge management decisions should be based on who (people), what (knowledge), and why (business objectives), and save the how (technology), for last. This shows that when institutionalizing knowledge management, the strategy should be based on balancing people and process (organizational practices) and technological concerns.

4.5 Means of Factors Influencing Institutionalization of Knowledge Management

4.5.1 Organizational Culture

The respondents were given a list of 5 questions that addresses organizational culture and asked to rate the extent of their importance. Table 14 below shows the minimum, maximum and mean of the responses.

Table 14: Aspects of Organizational Culture

Aspects of Organization Culture	Mean N=53
Encouraging knowledge sharing among employees	3.1887
Environment to share ideas experiences, successes and failures	3.0566
Employees are encouraged to consult knowledge repositories e.g. data banks	2.8491
Climate of openness and trust exists among employees	2.8113
Recognition and rewards	2.6415

Table 14 shows that knowledge encouraging sharing has the highest mean of 3.1887 while recognition and rewards has the lowest mean of 2.6415. This implies that these organizations

encourage employees to share knowledge. However, they have not put in place satisfactory systems for rewards and recognition for knowledge sharing.

4.5.1.1 Cross Tabulation of Existence of Knowledge Sharing and the Nature of Enterprise.

The researcher sought to compare extent of encouragement of knowledge sharing among the organizations as shown in table 15 below.

Table 15: Cross Tabulation of Existence of Knowledge sharing among employees and nature of the enterprise

Encouraging knowledge sharing among employees	Measure	Nature of the manufacturing enterprise		
		Edible Oil Enterprise	Soft Drink Enterprise	Plastic Container Enterprise
	Strongly Agree	10.0%	21.4%	73.7%
	Agree	80.0%	50.0%	15.8%
	Disagree	10.0%	21.4%	10.5%
	Strongly Disagree	.0%	7.1%	.0%
	Total	100.0%	100.0%	100.0%

Table 15 shows a cross tabulation of existence of knowledge sharing among employees and the nature of the enterprises. It shows that at Plastic Container Enterprise 73.7% of the respondents indicated strongly agree and 80.0% of the respondents at Edible Oil Enterprise indicated agree. This shows that there is existence of knowledge sharing at Plastic Container Enterprise followed by Edible Oil Enterprise. This implies that knowledge management practices have been institutionalized to a greater extent at Plastic Container Enterprise.

4.5.1.2 Existence Openness and Trust among Employees.

The respondents were asked to indicate the extent of existent of climate of openness and trust in the company. The responses are shown in table 16 below.

Table 16: Existence of Openness and Trust

Measure	Percent N=53
strongly disagree	1.9
Disagree	32.1
Agree	49.1
Strongly agree	17.0
Total	**100.0**

Table 16 shows that 49.1% of the respondents indicated agreed, while 32.1% of the respondents indicated disagree, 17.0% strongly agreed, 1.9% strongly disagreed. This demonstrates that majority of the respondents (49.1%) only agree that there is existence of openness and trust among employees. This implies that existence of openness and trust among employees is not strong. Knowledge sharing requires high level of openness and trust among employees as Wong (2005) points out that without a high degree of mutual trust, people will be skeptical and thus withhold their knowledge.

4.5.2 Management Support in Knowledge Management

The respondents were given a list of 5 questions that addresses management support in knowledge management. They were asked to indicate the extent of the aspects listed. Table 17 below shows their responses.

Table 17: Management support in knowledge management

Variables	Mean N=53
Key element in strategic planning exercises	3.2642
Management is aware of KM and promotes	3.0755
Allocates resources towards increasing knowledge	2.9057
Link knowledge to financial results	2.8113
Employees are evaluated and compensated for contributing to development of organizational knowledge	2.6981

Table 17 shows that, the mean for key element in strategic planning exercises is 3.2642, top management is awareness and promotion is 3.0755, and allocation of resources towards increasing knowledge base is 2.9057. This shows that knowledge plays an important role in strategic planning because the majority of the respondents agreed with the highest mean of 3.2642. This implies that knowledge is recognized as key in strategic planning in the manufacturing enterprises.

4.5.2.1 Leadership of Knowledge Management Initiatives.

The study found out that at Plastic Container Enterprise there is an appointed coordinator, who is also the Kaizen Coordinator. The respondents indicated that there was no Chief Knowledge Officer position. However, they indicated that Heads of Departments and Human Resource Department are responsible for knowledge management initiatives. There is need to have a central unit to manage knowledge sharing initiatives, under the leadership of chief knowledge officer. An enterprise knowledge management program is usually a centralized, organization-wide effort to standardize and excel in KM (O'Dell and Hubert, 2011). Ray (2008) points out that a chief knowledge officer with responsibility for the political, strategic, and technical implementation of KM need to be established.

4.5.3 Information Technology Infrastructure

The respondents were asked whether the following information technology infrastructures are available in their respective companies. Table 18 shows their varied responses.

Table 18: Information Technology Infrastructure

Information Technology Infrastructure	Frequency	Mean
Computers	50	3.6800
e-mails	51	3.2549
Intranet	51	3.2549
Document management	51	3.0980
Internet	51	3.0000
Data warehousing e.g. data banks	50	2.9400
Knowledge repository	51	2.6275
Knowledge management software	51	2.3529
Library or resource centre	51	2.2353
Social media	51	1.9608

Table 18 shows that the mean for availability of computers is 3.6800, e-mails 3.2549 and intranet 3.2549. This shows that these organizations have invested more on computers. The mean score for availability and use of social media is very low at 1.9608. This implies that the information technology infrastructure required for communication and knowledge sharing is still low. Robust and steadfast enterprise knowledge management program requires investment on ICT infrastructure.

Online social networking is very critical in capturing tacit knowledge. This study has revealed that the use of social media is very low. Communities of practice are very critical in knowledge management initiatives. Therefore social networks could become an important adjunct for creating and sustaining the engine of relationships and knowledge (O'Dell and Hubert, 2011). They need to start to encourage employees to use external sites such as facebook. Leverage what is already being used instead of discouraging employees from using social media.

4.5.4 Knowledge Management Process

The respondents were given a list of 4 questions that addresses knowledge management process. They were asked to indicate the extent of the availability of these practices and processes. The table below shows their responses.

Table 19: Knowledge management process

Knowledge Management Process variables.	Frequency	Mean
We value customer's input and employee interaction (CRM)	53	3.4906
Best practice transfer	49	3.1633
The company has formalized the process of transfer of lessons learned	49	2.8980
Tacit knowledge is valued and transferred by use of CoP	53	2.6415

Table 19 shows the mean score for "we value customer's input and employee interaction" is 3.4906, for effective internal procedures for transferring best practices, 3.1633 and whether the company has formalized the process of transfer of lessons learned, 2.8980. Tacit knowledge transfer by use of community of practice scored only a mean score of 2.415 out of a possible 4. This shows that these companies have not strongly embarked on the processes that propel knowledge sharing in the company. This implies that the respondents have high regard and value for customer knowledge.

4.6 Challenges in Institutionalization of Knowledge Management

The respondents were given a list of possible challenges in institutionalization of knowledge management in their respective companies. They were asked to indicate the extent to which they agree that those are possible challenges. Table 20 below gives shows their responses.

Table 20: 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

Table 20 shows that the mean for developing knowledge sharing is 2.9623, management support and commitment is 2.8113 and time for knowledge sharing is 2.8077. This implies that respondents consider developing knowledge sharing, management support and time for knowledge sharing as the highest challenges in institutionalization of knowledge management practices. These factors have been identified by this study to be among the organizational practices. Dalkir (2005) points out that management commitment is important because top executives develop the business case for KM. Knowledge management decisions should be based on who (people), what (knowledge), and why (business objectives) without which KM may fail. Another significant challenge is time, which Riege (2005) agrees that lack of time to share knowledge is one of the barriers to knowledge sharing. Dalkir (2005) points out that today's work environment are increasingly knowledge intensive and scarce in resources such as time. The politics and the organizational contexts influence the institutionalization of knowledge management as shown by the response of the respondents. 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.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the data findings on current status, factors and challenges affecting institutionalization of knowledge management in the manufacturing enterprises in Kenya. This chapter is hence structured into summary of findings, conclusions, recommendations and area for further research.

5.2 Summary of Findings

The overall objective of this study was to investigate factors affecting institutionalization of Knowledge Management in manufacturing enterprises in Kenya. The specific objectives were: 1) to determine the current status of Knowledge Management institutionalization in manufacturing enterprises in Kenya, 2) to examine factors that influence institutionalization of knowledge management in this sector, 3) to determine the challenges in institutionalization of knowledge management in the manufacturing enterprise. The research questions were: 1) what is the current status of knowledge management institutionalization in manufacturing enterprises in Kenya? 2) what are the factors that influence institutionalization of knowledge management? 3) What are the challenges in institutionalization of knowledge management in this sector? The study adopted descriptive design. A census was conducted of all the 60 senior managers in the three selected manufacturing enterprises. 20 self administered questionnaires were given to the respective companies of which 88.33% questionnaires were filled and collected by the researcher. The study was conducted between June, 2011 and July, 2011. Combinations of descriptive statistics, cross tabulations, and exploratory factor analyses were used to analyze the quantitative data.

This study established that 50.9% of the respondents understood knowledge management as developing and utilizing knowledge to increase organizational performance and to meet strategic

goals and while 49.1% indicated it's about creating, sustaining, sharing and making the best use of available knowledge to enhance organizational performance. None of the respondents indicated it is a management fad that would soon be forgotten. 75.5% of the respondents indicated they recognize knowledge as one of the organizational asset base. 57.7 % of the respondents indicated they have not yet developed a knowledge management policy while 42.3% indicated they have a policy. The study also found out that those respondents who recognize knowledge as an asset, 50% are planning to implement knowledge management and 47.2% have implemented knowledge management. Interestingly, respondents who do not recognize knowledge as an asset, 75% are not planning to implement knowledge management.

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: (1) growth of business and retention of market share, (2) improving quality in production, (3) create and sustain strategic competitive advantage, (4) nurturing creativity and innovation, (5) key to company's business strategy, (6) retain and capture employee knowledge, (7) dynamic business environment and markets, (8) knowledge creation and knowledge transfer, (9) 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.

The findings of this study show that the mean for encouraging employees to share knowledge is 3.1887 and the environment that facilitates sharing of ideas, experiences, successes and failures is 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.

The study findings show that according to Exploratory Factor Analyses (EFA), Rotated Component Matrix there are two critical factors that influence institutionalization of knowledge management. These factors are organizational practices and technological infrastructure. Under organizational factors, we have: 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. Under technological infrastructure, we have: 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.

The third study question was to establish challenges in institutionalization of knowledge management. This research found out that there are quite a number of challenges in institutionalization of knowledge management. These challenges includes: developing a knowledge sharing culture with mean of 2.9623, management support and commitment (2.8113), lack of time for knowledge sharing (2.8077), information technology (2.7547), lack of reward and recognition for knowledge sharing (2.7547) and best knowledge not accessible had the lowest mean of 2.3846. 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.

5.3 Conclusions

The study revealed that respondents' understood and appreciated knowledge management and none of the respondents indicated KM to be a management fad that would soon fade away. They gave two versions of their understanding of knowledge management. First, as developing and utilizing knowledge to increase organizational performance and to meet strategic goals and second, as creating, sustaining, sharing and making the best use of available knowledge to enhance organizational performance. The growth of business and retention of market share, improving quality in production and creation and sustaining strategic competitive advantage were the major reasons for embracing knowledge management. The study also revealed that despite a high degree of recognition of knowledge as one of the organizational assets, majority of the respondents indicated that they do not have an explicit policy on knowledge management. The researcher concludes that knowledge management is appreciated by a majority of the respondents and that those who have not implemented are planning to implement KM. 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 requires therefore that manufacturing enterprises institutionalize knowledge management practices to facilitate sharing of knowledge and application to sustain continuous improvement of products and processes.

This study established that organizational practices and technological infrastructure are two critical factors that influence institutionalization of knowledge management. Perrin, Rolland and Stanley (2007) 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, a comprehensive

view be taken in institutionalization of knowledge management, however, first consider organizational practices and information technology infrastructures second and Dalkir (2005) corroborates by pointing out that save the how (technology), for last.

In terms of the challenges in Institutionalization of Knowledge Management, the study established that developing a knowledge sharing culture, provision of leadership and lack of time for knowledge sharing were the major challenges. These are among the organizational practices identified in the study to be the variables that influence institutionalization of knowledge management.

5.4 Recommendations

The findings of this study point out that for manufacturing enterprises to foster sustainable competitive advantage, innovation and quality production they need to not only embrace, but also to institutionalize knowledge management practices. The researcher recommends that the leadership of these organizations should develop an explicit policy on knowledge management in the same breadth with quality policy and health and safety policy.

More importantly, management should restructure their organizational structure to include the position of Chief Knowledge Officer who shall manage and drive the knowledge management agenda in the organization. They should establish mechanisms and structures that help in sustaining knowledge acquisition over time.

The study also recommends that executives of modern manufacturing enterprises need to institutionalize knowledge management practices in order to capture, retain and share intellectual treasure.

The study recommends that 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 that organizational practices have the highest influence than the technological infrastructure.

Management should develop a Knowledge Repository and Resource Centers to facilitate use and creation of new knowledge.

This study recommends that the government and COYA organizers should put more emphasis on knowledge-driven economy. They should develop viable linkages between industry, government and research institutions. Higher learning institutions should review their curriculum to reflect the knowledge-driven economy and include training of human capital with knowledge management competences and skills.

5.5 Recommendation for Further Research

Further research should be conducted that involves operational level employees in more manufacturing companies and consider using regression analysis. The researcher recommends further studies on the effects of organizational practices on successful institutionalization of knowledge management in manufacturing or service enterprises. Another area of further research is on the role of knowledge value chain in institutionalization of knowledge management.

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APPENDIX 1: LETTER FROM FACULTY OF COMMERCE & DISTANCE LEARNING

CPA Centre, Thika Road, Ruaraka
P.O. Box 56808, Nairobi, 00200
Tel: *+254208561803/8561808/8561045*
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Mobile: +254710888022
Website: www.kca.ac.ke

Date. *MaY 24, 2011*

Our Ref KCAU/FOC./wm.
Your Ref. ....

TO WHOM IT MAY CONCERN

RE: RESEARCH PROJECT

This is to certify that **CHERUIYOT COSMAS KEMBOI REG.NO. *10/00504*** has been permitted by the Faculty of Commerce and Distance Learning to carry out research on the topic **"Institutionalization of Knowledge Management in Manufacturing Enterprises in Kenya: A case of selected companies."** The research is purely for academic purposes and for the partial fulfillment of the requirements for the MBA Corporate Management Degree Programme.

Kindly assist the student with information where possible.

Yours faithfully,

Prof. Silas Onyango
**Dean Faculty of Commerce
& Distance Learning**

APPENDIX II: QUESTIONNAIRE

Dear Respondent

I am a Master of Business Administration (Corporate Management) student at KCA University. I am undertaking a dissertation on**" Institutionalization of Knowledge Management in manufacturing enterprises in Kenya: a case of selected companies**". Towards this end I have chosen your company.

The purpose of the study is to investigate factors affecting Institutionalization of Knowledge Management in manufacturing enterprises in Kenya. The target respondent are senior managers and their deputies in charge of the following departments: human resource, ICT, Finance, marketing, Procurement, Production, Internal audit, administration, Research & Development, Team leaders, Knowledge Management initiatives, among other sections.

 You can help this study by consenting to complete the questionnaire. The questionnaire is designed to gather data about the existence of factors that influence institutionalization of Knowledge Management.

I assure you that the answers provided will be used only for the purposes of this study.

Thank you

Cheruiyot Cosmas Kemboi

JUNE 2011

You are requested to respond below as objectively as you can. By responding to this questionnaire, you are affirming your consent to participate in this research project. Your individual responses will always remain completely confidential.

Part I: General information

Please put a tick mark ☑ in the appropriate box where required.

1 Age? ☐   20 – 30 years ☐   31-40 years ☐   41-50 years ☐   over 50 years

2 Current responsibility?

CEO/MD ☐ Head of department ☐   Head of section/Team   ☐

Deputy Head of department   ☐   Others (Specify) _____

3 For how long have you held the current position?

0-5 years ☐   6-10 years ☐   11-15 years ☐   over 15 years ☐

4 Qualifications? (Tick all that apply)

Diploma☐   Bachelor's Degree   ☐   Master's degree ☐

PhD ☐   Other (Specify) _____

5 What is your major area of expertise? _____

6 Are you considering changing your employer in the next 1-5 years?

YES ☐   NO   ☐   Not sure   ☐

Part II: Current status of Knowledge management

7. What is your understanding of Knowledge Management? (Tick the appropriate response)

☐   Developing and utilizing knowledge to increase organizational performance and to meet strategic goals.

☐   It's about creating, sustaining, sharing and making the best use of available knowledge to enhance organizational performance.

☐   A management fad that would soon be forgotten

8 A business need for Knowledge Management has been identified in our company?

YES ☐   NO ☐

9 Does your company recognize knowledge as one of the asset base?

YES ☐   NO ☐   Don't know ☐

10 Is there a Knowledge Management policy in your company?

YES ☐   NO ☐

11 What is the current state of Knowledge Management implementation in your company? (Tick one only).

☐ Implemented Knowledge Management

☐ Planning to implement Knowledge Management

☐ Not planning to implement Knowledge Management

12 The following are possible reasons why your company is embracing Knowledge Management. Please circle the number that best describe the extent of the importance for embracing knowledge management. The numbers represent the following responses:

1= Strongly not important 2= Not important 3 =Important 4= Very important

Possible reasons for embracing Knowledge Management	RATINGS			
Create and sustain strategic Competitive advantage	1	2	3	4
Retain and capture of employee knowledge to provide a better service	1	2	3	4
Key to company's business strategy	1	2	3	4
Nurturing creativity and innovation	1	2	3	4
Knowledge creation and knowledge transfer	1	2	3	4
Improving quality in production	1	2	3	4
Dynamic business environments and markets	1	2	3	4
Helps avoid costly mistakes and ill-informed decisions	1	2	3	4
Growth of the business and retention of market share	1	2	3	4

Part III: Factors affecting institutionalization of Knowledge management

(a) The Organizational culture

Please circle the number that best describes the engagement in Knowledge Management in your company. The numbers represent the following responses:

1=Strongly disagree   2=Disagree   3= Agree   4 =Strongly agree

13 This company encourages knowledge sharing among employees

     1   2   3   4

14 In this company, a climate of openness and trust exists among employees

     1   2   3   4

15 Employees are encouraged to consult/use knowledge repositories (e.g. Data banks) as their point of first reference when faced with a work related problem.

     1   2   3   4

16 Management consistently recognize and rewards employees for sharing, using knowledge and contributing to knowledge repositories.

     1   2   3   4

17 The company provides a work environment where employees meet to share ideas, experiences, successes and failures.

     1   2   3   4

(b) Management support in Knowledge management

18 Top management is aware of Knowledge Management, and actively promotes it in the company

     1   2   3   4

19 We explicitly recognize knowledge as a key element in strategic planning exercises.

     1   2   3   4

20 Individuals are evaluated and compensated for their contributions to the development of organizational knowledge

1   2   3   4

21 The organization allocates resources toward efforts that measurably increase its knowledge base

1   2   3   4

22 The organization has developed ways to link knowledge to financial results

1   2   3   4

23 There is an appointed leader who leads the Knowledge management initiatives

Yes ☐ NO ☐

24 If the answer is no, who is in charge?_____

_____

(c) Information technology infrastructure

25 Are the following information technology infrastructure available to facilitate knowledge sharing in your company? Please circle the number that best describe the extent of the availability. The numbers represent the following responses:

1=Strongly disagree 2=Disagree 3= Agree 4 =Strongly agree

Information Technology Infrastructure	RATINGS			
Computers	1	2	3	4
Internet	1	2	3	4
Intranet	1	2	3	4
E-mails	1	2	3	4
Document management	1	2	3	4
Knowledge Repository	1	2	3	4
Library or Resource centre	1	2	3	4
Social media	1	2	3	4
Knowledge management software	1	2	3	4

| Data warehousing e.g. data banks | 1 | 2 | 3 | 4 |

Others (Please specify) _____

_____

(d) Knowledge Process

26 The company has effective internal procedures for transferring best practices throughout the organization

    1   2   3   4

27 The company has formalized the process of transfer of Lessons learned.

    1   2   3   4

28 Tacit knowledge (what employees know how to do, but cannot express) is valued and transferred by use of Community of practice (COP)/teams

    1   2   3   4

29 In this company, we value customer's input and employee interaction.

    1   2   3   4

Part IV: Challenges in institutionalization of knowledge management in your company

30 The following are possible challenges in institutionalization of Knowledge Management in your company. Please circle the number that best describes the extent to which you agree. The numbers represent the following responses:

1=Strongly disagree 2=Disagree   3= Agree   4 =Strongly agree

Challenges in institutionalization of Knowledge Management in your company	RATINGS			
Management support & commitment	1	2	3	4
Lack of reward and recognition for knowledge sharing	1	2	3	4
Developing a knowledge sharing culture	1	2	3	4
Information technology to facilitate sharing of knowledge	1	2	3	4

Best knowledge not accessible	1	2	3	4
Hoarding of knowledge	1	2	3	4
Time for knowledge sharing	1	2	3	4
Lack of trust and openness among employees	1	2	3	4
Lack of understanding of knowledge management and benefits	1	2	3	4
Inadequate skill in knowledge management initiatives	1	2	3	4

Thank you for your time.