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AN INVESTIGATION INTO THE PRACTICES, PROCEDURES, AND CHALLENGES OF KNOWLEDGE MANAGEMENT IN GOVERNMENT-OWNED ORGANIZATIONS IN KENYA

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Degree of

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By

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ABSTRACT

Knowledge management has been burgeoning in importance during the last one and half decades. Both profit making and non-profit making organizations have had to and continue to embrace and practice knowledge management. This study was set with the broad aim of investigating the practices, procedures and challenges of managing knowledge in Kenya's government-owned organizations. The specific objectives of the study from which research questions were formulated were: to assess the extent to which government-owned organizations practice knowledge management, find out the extent to which the organizations are "learning organizations", establish how the organizations determine the knowledge they require and the formats in which it should be delivered, find out whether and the extent to which individual organizational members in the organizations are motivated to contribute to knowledge creation and sharing, and discover the major managerial challenges and problems that the organizations face in managing knowledge. The scope of this study was limited to government-owned organizations (parastatals) in Kenya operating in environments considered to be information intensive and whose organizational structures are similar.

This study is significant because as far as the researcher is aware, no any other structured research has been carried out in Kenya on any aspect of knowledge management. Hopefully, the findings of this study will elucidate the knowledge management scenario in Kenya and suggest possible ways of improving knowledge management practices and procedures within Kenyan government-owned organizations and other organizations, and thus also the productivity and competitive edge of the organizations. The resource-based theory of the firm was adopted for the theoretical framework of this study. The resource-based theory of the firm stipulates that a firm's distinctive competencies are based on its resources and capabilities, which may be represented by tangible assets such as patented inventions, or intangibles such as reputation, brand image, or human skills. Knowledge is supposed to be the key productive resource of the firm.

The literature reviewed covered topical issues in knowledge management including the difference between knowledge and information management, knowledge society, knowledge economy, intellectual capital, knowledge workers, the concept of

organizational learning, assessment, valuation and measurement of knowledge-based assets, tools of knowledge management, etc.

A survey research method was adopted for the purpose of collecting data for this study. An interview schedule was prepared which was used as a guideline for collecting data. The researcher held informal relaxed conversations with the respondents who were allowed to freely give additional information outside the interview schedule. All the respondents were managers in their respective organizations. The researcher considered the managers to be producers and users of knowledge in their organizations. The researcher scanned through several relevant documents that the organizations availed for additional information and also unobtrusively observed the behaviour of the respondents.

The study established that although there are no formal structures for managing knowledge in the organizations, a large amount of knowledge flows through the organizations and there are several knowledge management activities carried out by staff who hold knowledge management-related positions; human and information resources, which play an important role in knowledge management are highly regarded in the organizations; the concept of knowledge management is highly regarded; there are no standards set for determining the knowledge required in the organizations and that there are no specifics formats in which the knowledge should be delivered; the organizations do not have sophisticated, modern electronic tools for managing knowledge as information and communication technologies are not well developed; organizational learning is encouraged and takes place in the organizations; and the organizations face a number of challenges and problems in managing knowledge. Some of the problems and challenges are unique to the Kenyan organizational environment while others are universal and may be experienced by organizations in other countries. Recommendations of the study include introducing knowledge management programmes in government-owned organizations; designing knowledge management systems; integrating knowledge management systems; making extensive use of expertise available within the organizations; changing organizational philosophy, culture and practices to embrace knowledge management; and formulating and implementing knowledge management policies within the organizations.

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CHAPTER ONE
INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Conceptual Setting

The concept of knowledge management is a fairly new domain in the Kenyan government-owned organizations. From the 1990s, knowledge management has become a hot issue (Ichijo, 2004:125). Ichijo suggests that business researchers, consultants, and media pundits from all over the global map have exhorted today's companies to consider knowledge creation as a source of competitive advantage. Very few government-owned organizations in Kenya are known to have formal knowledge management programmes in operation, if any.

Knowledge management has been defined variously with emphasis on different aspects of knowledge management. Morrow (2001:382) defines knowledge management as a term used loosely to refer to a broad collection of organizational practices and approaches related to generating, disseminating, and applying knowledge. Developing new knowledge, sharing knowledge, combining existing knowledge, and valuing knowledge; are all part of what has been termed as knowledge management.

Knowledge management caters to the critical issues of organizational adaptation, survival, and competence in the face of increasingly discontinuous environmental change. Essentially, it embodies organizational processes that seek synergistic combination of data and information-processing capacity of information technologies and the creative and innovative capacity of human beings (Malhotra, 1998:58). Corrall (1998:2) quotes Gartner Group as defining knowledge management as a discipline that promotes an integrated approach to identifying, managing and sharing all an enterprise's information assets. These information assets may include databases, documents, policies, and procedures, as well as previously unarticulated expertise and experience resident in individual workers. This sequence of definitions falls into two groups: those definitions that emphasize process and those that introduce the idea of knowledge management as a discipline. This, in turn, suggests that knowledge

management started as a differentiation from information and library management and it is now seen by some as a separate area of enquiry.

Knowledge management involves the identification and analysis of available and required knowledge assets and knowledge assets-related processes, and the subsequent planning and control of actions to develop both the assets and the processes so as to fulfil organizational objectives (University of Edinburgh, 1999).

These definitions imply that organizational knowledge is real and a strategic resource worth managing as it can make the difference between an organization achieving or failing to achieve its objectives. The definitions also imply that a human attribute and people are both an important source of knowledge and critical to knowledge management processes. Human beings are important depositories of knowledge. Tacit knowledge, as opposed to explicit knowledge, is stored in people's heads. A knowledge management process should make it possible and desirable for human beings to create and share knowledge. A knowledge management programme that may not make it possible for organizational members to share knowledge may not succeed. Technology should also assist in capturing and making tacit knowledge accessible in an organization.

Knowledge management in general, is one of the foremost strategic directions being investigated and adopted by organizations today. Knowledge management is considered a key part of the strategy to use expertise to create a sustainable competitive advantage in today's business environment (Beckman 1999:7). The promises of better decision making, faster turn around times, improved organizational communication and higher levels of cooperation and interaction among personnel, have all combined to create a holy grail kind of aura.

What is knowledge management about or what is the use of knowledge management in an organization? The primary focus of knowledge management is the use of information technology and tools, business processes, best practices, and culture to develop and share knowledge within an organization and connect those who possess knowledge with those who do not (Anantatmula, 2005:173). Anantatmula further says that ultimately, leveraging relevant knowledge assets to improve organizational

performance is what knowledge management is all about. May be Anantatmula puts too much emphasis on the importance of information technology in knowledge management? His emphasis on the importance of information technology tools is a clear demonstration of what Pearlson and Saunders (2004:279) perceive as exaggerated promises and heightened expectations, couched in the hyperbole of technology vendors and consultants which create unrealistic expectations of the role of information technology in knowledge management.

The most profound aspect of knowledge management is that at the end of the day, an organization's only sustainable competitive advantage lies in what its members know and how to apply that knowledge to achieve the organization's objectives. Information technology has traditionally focused on explicit knowledge that is easily collected, organized, stored and transferred by digital means. It is not practical for information technology to be used for collecting, organizing, storing and transferring tacit knowledge, which resides in organizational employees' minds. Collins (1995:70) gives three kinds of knowledge or abilities that may not easily be captured and/or be transferred by information technology:

- "embodied knowledge"- that is, knowledge contained in a person's body;
- "embrained knowledge" - the knowledge associated with the physical set up of the brain; and
- "encultured knowledge"- the knowledge associated with society.

Many employees in Kenyan government-owned organizations are endowed with tacit knowledge which helps them perform knowledge management functions without realising it. Employees of the organizations remember names, numbers, experiences, dress codes, work procedures and when to report to work and leave. The employees know where to find information on terms and conditions of service, salary incremental dates and where to report accidents and other incidents when they happen. Many managers in the government-owned organizations may not be in a position to realize that a lot of tacit knowledge flows through their organizations on a daily basis. A good organizational knowledge management programme should be concerned with how much of such knowledge is captured by individual employees and how much is captured by the organization as a whole, stored and retrieved when

required. Tacit knowledge residing in the employees' minds should be of particular concern to an organization's knowledge management programme. It should be of particular concern because it is expressed in the skills and capabilities that employees of an organization possess.

For a long time, scholars have been concerned about the major gap that exists between corporate research findings and corporate management practices (Rynes, Bartunek and Daft, 2001:340). Corporate reality is not any different in Kenya. Many corporate research findings in Kenya are rarely put into practice or applied in real corporate management practices. It is as if researchers and corporate managers live worlds apart. Recommendations are rarely, if ever implemented and followed up. If anything, there is always an urge for new recommendations and research findings which also remain at that stage recommendations and research findings.

Organizations have started viewing knowledge as an important resource that may make a difference between success and failure. According to Slaughter and Rhoades (2004:17), organizations in the new economy treat advanced knowledge as a new raw material that can be claimed through legal devices, owned and marketed as a product or service. The knowledge is highly technologized and digitized. Wiig (1997a:401) says that many organizations have started to pursue knowledge management. The objectives of the organizations pursuing knowledge management are to increase organizational effectiveness and to improve short-and long-term competitiveness. Wiig further argues that most management teams pursue knowledge management by conviction based on their management philosophy and broader understanding of economic and competitive forces. For many years, competitiveness has not been part of the concern of top management of Kenyan government-owned organizations.

Application of knowledge management in organizations is almost becoming a universally accepted management practice. However, some organizations are not as yet applying knowledge management. Organizations which are not yet applying knowledge management may be aware that they don't capture and reuse good or best practices, that they risk repeating the same mistakes, and that they are likely to lose what employees learn, but never share, about suppliers, customers, or competitors (Gorelick, Milton and April, 2004:3). Gorelick, Milton and April further argue that

the primary problem that knowledge management is designed to solve is that teams and individuals are performing below optimum because they do not have access to knowledge acquired through experience elsewhere. Also, new endeavours and innovation may be impeded from lack of access to knowledge through knowledge management practices and tools.

Knowledge management is a fairly new domain, which continues to burgeon in importance. Management's attention to knowledge management in Kenya's government-owned organizations is however not so obvious. This is probably because knowledge management, to a large extent makes use of advanced communication and information technologies as platforms to operate from and such technologies are not always available and accessible in Kenya.

To the best knowledge of the researcher, no major study as yet has been carried out in Kenya to show benefits, if any, of investing in knowledge management and particularly in the public sector[1].

1.2 Why Knowledge Management?

What does it mean to manage knowledge and is knowledge indeed manageable? Skyrme (2003:2) defines knowledge management as the explicit and systematic management of vital knowledge and its associated processes of creating, gathering, organizing, diffusion, use and exploitation. It requires turning personal knowledge into corporate knowledge that can be widely shared throughout an organization and appropriately applied. Skyrme concedes that the words management and knowledge at first sight sound uneasy bedfellows. This is because knowledge is largely cognitive and highly personal, while management involves organizational processes. Many knowledge workers do not like to be managed in the traditional sense. However, knowledge is increasingly being recognized as a crucial organizational resource that gives advantage over competitors. The management of knowledge therefore is too important to be left to chance by any modern organization.

[1] Public sector is the same as government

The terms "knowledge" and "information" are used interchangeably, but there is a fundamental difference. According to Nonaka and Takeuchi (2004:49), knowledge is first about beliefs and commitment. Knowledge is a function of a particular stance, perspective, or intention. Secondly, knowledge, unlike information is about action. Third, knowledge, like information, is about meaning. On the other hand, information provides a new point of view for interpreting events or objects, which make visible previously invisible meanings or sheds light on unexpected connections. For that reason, Nonaka and Takeuchi contend that information is a necessary medium or material for eliciting and constructing knowledge.

In differentiating information and knowledge, Wiig (1995:19) explains that knowledge consists of truth and beliefs, perspectives and concepts, judgments and expectations, methodologies and know-how. Knowledge is accumulated, organized, and integrated and held over longer periods to be available to be applied to handle specific situations and problems. On the other hand, information consists of facts and data that are organized to describe a particular situation or condition. Knowledge is subsequently applied to interpret the available information about a particular situation and to decide how to manage it. Knowledge is used to determine what the situation or condition means.

On their side, Schultze and Leidner (2002:218) look at knowledge management as the generation, representation, storage, transfer, transformation, application, embedding, and protecting of organizational knowledge. Hedlund (1994:76) defines knowledge management as the generation, representation, storage, transfer, transformation, application, embedding and protecting of organizational knowledge. Schultze and Leidner (2002:214) address the issue of why organizations are implementing knowledge management practices and technologies. They say that knowledge has become a primary resource in organizations. For that matter, organizations are implementing knowledge management practices and technologies on the promise of increasing their effectiveness, efficiency, and competitiveness. Schultze and Leidner further say that the promises of increasing effectiveness, efficiency and competitiveness are based on an assumption that knowledge is good and there are, at worst negligible negative consequences of managing knowledge.

Gorelick, Milton and April (2004:18) look at knowledge management as a framework for applying, structures, and processes at the individual, group, team, and organizational levels so that an organization can learn from what it knows (and acquire new knowledge if required) to create value for its customers and communities. The knowledge management framework integrates people, processes, and technology to ensure performance and learning for sustainable growth.

Organizational development goals should now begin to focus more around the challenge of stitching together hitherto diverse and incommunicative pockets of knowledge to promote 'intelligent working' (Ellis, 2005:2). According to Ellis, intelligent working is often the direct opposite of what has been called by some 'silo working' where work functions were often heavily compartmentalised leading to frequent breakdowns in communication, duplication of effort and confusion. He further says that silo working is typically a clear example of the poor use of organizational knowledge assets. Generally, information is not shared, project teams from one silo rarely talk to those in other silos and few opportunities, if any are taken to learn from the best performers and from each other. The move from predominantly industrial to predominantly intellectual work in many organizations has effectively shattered this model. Arguably, the success of the Industrial Revolution and the twentieth-century rise of manufacturing were largely based on differentiation and specialization – an indication that we are now seeing a different form of organization emerging. One can be sure that in the Kenyan government-owned organizations, there are organizational members who have a wealth of expertise at their fingertips, developed after years of practical work experience. The expertise of such organizational members should be shared with other organizational members. Organizations may claim ownership of knowledge, but it is individuals who are responsible for creating knowledge. Takeuchi and Nonaka (2004:10) assert that the production of new knowledge involves a process that organizationally amplifies the knowledge created by individuals and crystallizes it as part of the knowledge network of the organization. The organization needs to create enabling conditions for individual organizational members to create and share new knowledge. Government-owned organizations in Kenya need to foster enabling knowledge creation and sharing conditions.

The researcher observes that the silo model of working is still prevalent in many Kenyan government-owned organizations. It may not be a legal requirement, but it still lingers even after organizations elsewhere have moved from predominantly industrial to predominantly intellectual work.

Knowledge may be viewed differently and hence, approaches to knowledge management may vary. According to Alavi and Leidner (2001:110), if knowledge is viewed as an object, then knowledge management should focus on building and managing knowledge stocks. If knowledge is viewed as a process, then knowledge management should focus on knowledge flow and the processes of creation, sharing and distribution of knowledge. On the other hand, if knowledge is viewed as a capability, then knowledge management should focus on building core competencies, understanding the strategic advantage of know-how, and creating intellectual capital. Alavi and Leidner say that the major implication of these various ways in which knowledge is perceived is that each perspective suggests a different strategy for managing the knowledge and a different perspective of the role of systems in support of knowledge management.

The concept of knowledge management is relatively new allover the world. Quintas (2002:1) traces the rapid growth of interest across the world in knowledge and how it might be managed within and between organizations to the mid 1990s. He however concedes that the close relationship between knowledge and political as well as economic power has been observed for many centuries. Although managing knowledge has been a human task for over five million years, it has only recently gained attention as a business discipline (Gorelick, Milton and April, 2004:4). It can be argued that the military and fighting forces were one of the first to recognize the strategic advantage to be gained by managing knowledge and, in this sense; the business world has only begun to catch up.

Wiig (1994:2) contends that it is the desire of every organization to act intelligently. However, the ability to act intelligently is not automatic. The major requirement is to have appropriate knowledge at each point-of-action in the organization. Wiig is emphatic that it is the objective of knowledge management to build the requisite

knowledge, deploy it to all points-of-action, create a culture and an environment that are conducive to using the knowledge to act intelligently.

According to Von Krogh (1998:133), the recent interest in organizational knowledge has prompted the issue of managing knowledge to the organization's benefit. Organizational managers have realized and recognized that knowledge can constitute a source of competitive advantage, hence turning to tools and approaches to visualize, mine, apply, refine, and transfer knowledge and experience available to the organization. Von Krogh thinks that an organization's overall performance now depends on the extent to which managers can mobilize all the knowledge resources held by individuals and teams and turn these resources into value-creating activities. If Von Krogh's assertion is taken as a basis for organizational performance and success, one may infer that failure to mobilize all knowledge resources of an organization may severely hinder the work of that organization.

In an environment such as Kenya, where knowledge management programmes are not common place, organization managers may ask why knowledge should be managed or what may be the benefits of managing knowledge. Skyrme (2003:1-2) outlines what he thinks are reasons as to why the level of interest in knowledge management has grown dramatically during recent years:

- **Globalization and competition** - Many organizations rely on knowledge to create their strategic advantage. With available knowledge widely dispersed and fragmented, organizations often waste valuable time and resources in 'reinventing the wheel' or failing to access the highest quality knowledge and expertise that is available.
- **Knowledge can command a premium price in the market** – Applied know-how can enhance the value (and hence the price) of products and services. Examples are the 'smart drill' that learns how to extract more oil from an oil field, and the hotel chain that knows your personal preferences and so may give you a more personalized service.
- **Restructuring and downsizing:** Without effective mechanisms in place to capture knowledge of experienced employees, organizations make costly mistakes or have to pay again for knowledge they once had on tap.

- **Sharing of best practices** – Organizations save considerable sums of money each year by taking the knowledge from their best performers and applying it in similar situations elsewhere.
- **Successful innovation** – Organizations applying knowledge management methods have found that through knowledge networking, they can create new superior products and services.

Skyrme (2003:2) adds that these and other benefits, such as improved customer service, faster problem solving and more rapid adaptation to market changes, have resulted from an explicit focus on corporate knowledge as a strategic resource.

Knowledge management is a new management initiative which requires support of organizational top policy makers to implement. Gorelick, Milton and April (2004:5) identify a number of questions that any one in any organization starting or involved in a knowledge management initiative might ask. The questions include:

- Why should I implement or expand knowledge management initiatives in my organization now?
- Are there cultural prerequisites for knowledge management?
- What level of senior management support is required for knowledge management to be implemented successfully in organizations?
- Are there structures that need to be in place before knowledge management can be successful?
- How can I effectively implement knowledge management practices and tools?
- What is the role of information technology (IT) and human resources (HR) in knowledge management?
- How can I measure or assess the results of knowledge management initiatives?

These and other similar questions must be answered before a successful organizational knowledge management programme is established. Organizations

which have established knowledge management programmes have reported both failure and success.

Nonaka and Toyama (2002:997) consider knowledge to be one of the most important assets that a firm may use to create a sustainable competitive advantage today. Knowledge is considered the only sure source of lasting competitive advantage in an economy where the only certainty is uncertainty. When markets shift, technologies are bound to proliferate, competitors multiply, and products become obsolete almost overnight. Successful organizations are those which create new knowledge, disseminate it widely throughout the organization, and quickly embody it in new technologies and products. Increased efficiency, lower costs, improved returns on investments may all result from new knowledge.

Botha (2000:141) argues that knowledge is now universally recognized as the organization's most valuable asset and strategic resource. Botha further argues that the ability and capacity to manage this newly found human intellectual capital, and to convert it into useful market offerings – products and services – is fast becoming the most emphasized and critical executive skill for the management of enterprises in the Post-Industrial Era.

Stankosky (2005:5) introduces the idea of four pillars, which he thinks are crucial for effective management of knowledge assets of any organization. He identifies the pillars as leadership/management, technology and learning. Leadership deals with such issues as the environment, strategy, enterprise-level decision-making process involving the values, prioritization, and resource allocation of an organization's knowledge assets.

The organization's management pillar deals with the operational aspects of knowledge assets, including functions, processes, formal and informal organizational structures, control measures and metrics, process improvement, and business process re-engineering. Underlying this pillar are systems engineering, principles and techniques to ensure a flow down, tracking and, optimum utilization of all the organization's knowledge assets.

The pillar of learning deals with organizational behaviour aspects and social engineering. The learning pillar focuses on principles and practices to ensure that individuals collaborate and share knowledge to the maximum. Emphasis is given to identifying and applying the attributes necessary for a 'learning organization'.

The technology pillar deals with the various information technologies peculiar to supporting and/or enabling knowledge management strategies and operations. One taxonomy used relates to technologies that support the collaboration and codification of knowledge management.

There has been concern over whether knowledge management is different from information management. Maurer, writing in 2003 as cited by Schlogl (2005:10) distinguishes a knowledge management system from a conventional information system as having the following additional features: (i) it makes accessible private information that is of no use any more to its creator but probably for others (e.g., former project documentation makes it possible to retrace decision processes), (ii) it learns from the user's use (e.g. many users who search x seek y as well), (iii) it can initiate actions and provide information without any request by the user (e.g. if a user retrieves x, y is offered to him/her automatically), (iv) it can generate new information from existing (e.g. automatic classification).

Without making any estimate of how intelligently Kenyan government-owned organizations act, one may comfortably say that they need knowledge so that they are able to conduct their internal operations with greater effectiveness and efficiency. Intelligent-acting may enable Kenyan parastatals to exploit many opportunities. Intelligent-acting government-owned organizations in Kenya may create highly desirable products and services that may better satisfy the general public. Government-owned organizations in Kenya are expected to create social value for the Kenyan citizenry and one way of doing so is to provide superior products and services. In an effort to provide superior products and services to the general public, the government of Kenya has in the recent years sourced technocrats from the private-sector to inject "private-sector efficiency" and infuse a new work culture in the ministries and public-owned parastatals, (Nyamu, 2006:8).

Senior ministry and public-owned parastatals officials in Kenya are now hired on "performance contracts". The intent is to improve productivity in service delivery through the injection of management by objectives, now dubbed "strategic management system." The "performance contracts" imply that a worker may render his employment terminated if his/her performance does not match the planned performance targets in service delivery within the agreed period of time. Senior employees of parastatals should be in a position to calculate how much service and what quality of service have been rendered within the contractual period. Contracts signed last between one and three years and a contract may not be renewed if the person contracted does not perform to the satisfaction of the employer.

1.3 The Knowledge Economy

The "knowledge economy" is a recent phrase in management literature that denotes the importance of knowledge management in economic growth and sustainability. To understand why knowledge management has grown in importance in recent years, it is necessary to look at the economic context within which it is developing (Morrow, 2001:389). Knowledge economy involves consideration of networked economy and the role of information and knowledge in economic performance.

According to Morrow, networked and/or knowledge economy share common themes: (1) that developments in technology, especially information and communication technologies, are altering the economic bases of, at least developed countries; (2) that the key industries in this new economy are knowledge-intensive and heavily dependent on knowledge workers; (3) as a consequence of globalization, competitive advantage between nations rests on the extent to which they can develop their knowledge industries and knowledge workers; and (4) that the knowledge component of all industries is increasing and value added comes from the substitution of physical resources for intangibles.

Davenport and Prusak (1998:17) emphasize that production of ideas and not goods is the source of economic growth. Morrow (2001:390) credits technology facilitating growth in that it allows ideas in the form of techniques, research results, protocols, etc. to be globally distributed. Technology has also enabled industries to globalize and

relocate to take advantage of low-cost, low-skilled labour elsewhere while still coordinating and controlling operations from home base. Technology has further facilitated the development of a new range of industries based primarily on the production of information and knowledge.

1.4 Organizational Learning

This study addresses the issue of organizational learning in regard to its connection to knowledge management. Organizational learning or learning organizations may sound totally unrelated to knowledge management, but that is not the case. The debate on organizational learning or learning organizations stretches as far back as two decades ago (Fiol and Lylles, 1985:803; Gorlick, Milton and April, 2004:27). This debate of organizational learning started long before the concept of knowledge management emerged and one may wonder if and how the two are connected at all. Gorelick, Milton and April (2004:25) succinctly assert that knowledge management is not an end in itself. The goal of knowledge management is to increase organizational performance through learning by ensuring that each operational decision is made with access to all relevant knowledge and experience.

Gorelick, Milton and April further argue that in order for an organization to achieve and sustain competitive advantage, it requires to learn better and faster from its successes and failures. They believe that in learning organizations, individuals, groups, and teams continuously engage in new processes to acquire, capture, store, disseminate and reuse knowledge. For that matter, knowledge management programmes, processes, and tools support organizational learning and address more than the sum of knowledge of each member of the organization or the sum of individual learning. So, it may be asserted there is a relationship between an individual's learning and the collective learning of the organization, but individual learning is not sufficient to produce the systematic knowledge required for organizational survival and development (Gorelick, Milton and April, 2004:26).

For more than thirty-five years, theorists have been studying organizational learning as process, resulting in themes which link theories of knowledge management practices with organizational learning (Gorelick, Milton and April, 2004:27). Some

of the themes which have emerged from these perspectives on organizational learning include:

- Both individuals and organizations learn, using different methods, producing different outcomes.
- In order to grow, organizations need to learn.
- Information processing, knowledge storage, and sharing are important.
- Context (structure and culture) contributes to organizational learning.

In showing how strongly knowledge management and organizational learning are linked, Garvin (1993:80) defines the learning organization as "an organization skilled at creating, acquiring and transferring knowledge and at modifying its behaviour to reflect new knowledge and insights." Based on this definition, a learning organization is therefore a kind of entity that is charged with increasing collective capacity through learning. One can also say that in a learning organization, members of the organization are expected to collectively acquire new knowledge, skills and capabilities. This study addresses the issue of whether government-owned organizations are learning organizations or are not learning organizations.

Without necessarily linking organizational learning to knowledge management, Senge (1990a) claims to have introduced the term "learning organization" to mainstream business describing five disciplines which should be applied by a learning organization:

- Personal mastery – Continuously clarifying and deepening an individual's vision and ability to see reality objectively.
- Shared vision – the skills to build shared "pictures of the future" that generate individual and collective and enrolment rather than compliance.
- Mental models – deeply ingrained assumptions, generalizations, images that influence how an individual or collective understands the world and takes action.
- Team learning – learning how to recognize the patterns and interaction in teams that detract from learning. Team learning uses dialogue, conversational techniques, to suspend individual assumptions and allow genuine "thinking" together.

- Systems thinking – a conceptual framework for understanding phenomena in terms of their total context and interrelationships of their parts. Effort in one area can cause problems in another without an appreciation of the whole system.

1.4.1 Learning culture

Learning in organizations does not just happen. A learning culture may need to be created before organizational learning takes root. This study looks at the issue of the learning culture in the Kenyan government-owned organizations and how such a culture may be cultivated. Organizational learning needs a culture transition (Gorelick, Milton and April, 2004:51). There may be need for new technologies, processes, and roles, but a more fundamental requirement is organizational cultural change in the way that knowledge is perceived. If employees are made to believe that knowledge is a strategic organizational resource, and truly behave as if it is important, then they will use every available technology and opportunity to learn and share knowledge.

An organization cannot build a learning culture overnight (Garvin, 1993:90). According to Garvin, most successful examples of building learning cultures are the products of carefully cultivated attitudes, commitments, and management processes that have accrued steadily over time. An organization wishing to build a learning culture may take a few steps including:

- Fostering an environment that is conducive to learning.
- Top management explicitly freeing time for the purpose of learning.
- Opening up boundaries and stimulating the exchange of ideas. Boundaries should be opened up with conferences, meetings and project teams working together which either cross organizational levels or link the organization and its customers and suppliers to ensure a fresh flow of ideas and the chance of considering competing perspectives.

1.4.2 Knowledge-friendly culture

Culture takes a long time to build and in an organization where knowledge management thrives, it is expected that a knowledge-friendly culture should be established. The implication here is that not all organizations have knowledge-friendly cultures. According to Gorelick, Milton and April (2004:56), knowledge friendly cultures are created and nurtured; they cannot be dictated or imposed. They look at performance cultures based around team work as being the most knowledge-friendly cultures. They say that organizations that work in teams on projects towards performance goals are an ideal fit for knowledge management. Gorelick, Milton and April aver that it is much more difficult to introduce knowledge management and to achieve desired results in organizations where employees work individually, where there is no performance management system, or even where work is not organized into projects with goals, objectives and deadlines. Internal competition in an organization does not favour knowledge management.

Much as an organization may wish to establish a culture which embraces knowledge sharing and learning, there are some cultural barriers which may prevent it. The employees working in government-owned organizations in Kenya come from different cultural backgrounds. It may be no wonder that they bring along different cultural beliefs to their organizations. Some of the main cultural barriers to learning and knowledge sharing are embedded in the beliefs of individuals, teams, and the organization (Gorelick, Milton and April (2004:53). Gorelick, Milton and April contend that people are attracted to organizations that support their beliefs and values, and managers have a tendency of hiring employees who share their beliefs and values. Some of the common barriers to establishing a learning organizational culture that Gorelick, Milton and April identify are:

- **The belief that knowledge is power.** This belief is prevalent in an organization which has a lot of internal competition, where knowledge is managed by leaving it in the heads of experts as tacit knowledge. People need to be made to see and know that sharing knowledge actually delivers greater power when it comes to competing against major external competitors.

- **Drive to innovate.** Some organizational cultures are built so strongly around the principle of innovation (or pioneering, inventing, and creativity) that there is a strong cultural barrier when it comes to reuse of knowledge and information. This culture can be so powerful that even when a successful solution to a problem exists, people would still seek to do things differently so that they can be seen to be more creative. People in an organization need to be made to realize that while invention is good, reinvention is a waste of time.

- **Individual work bias.** Organizational cultures where organizational employees work as individuals, with individual objectives and rewards are difficult places to implement knowledge management. Knowledge management would flourish in cultures where collaboration and cooperation are the norm and where employees work in teams and communities and are rewarded for collective performance. In a culture where employees are rewarded only for individual performance, anything that compromises individual performance (such as spending time sharing knowledge with others) tends to be ignored. A knowledge manager should have as a priority moving the culture toward having a team or community orientation.

- **Local focus.** In cultures where employees are focused purely on their own team or business unit, knowledge management and organizational learning can be difficult. Introducing some form of cross-business unit structure, such as peer groupings or communities of practice, and providing tools for knowledge to flow in and out of local teams or departments is essential to generate more of a network.

- **"Not invented here."** This is a major cultural barrier to knowledge sharing. Individuals prefer their own solutions to anybody else's solution because they trust something they have created themselves. This barrier is largely as a result of lack of familiarity with the people who offer knowledge, and therefore as mistrust of the knowledge they offer. Managers should look for ways of bringing individuals together as a way of building trust.

- **"It won't work here."** Employees may be having the notion that knowledge management may not work in their organization. They may need to be convinced that knowledge can be managed in their own cultural and organizational context. There are always instances in every organization where knowledge is already being managed to some extent. A knowledge manager needs to demonstrate existing examples, using stories, or case histories, as evidence of value being delivered through knowledge sharing.

- **Don't see the value.** Some employees are likely to see no value in knowledge management. A knowledge manager may address this kind of barrier by telling success stories of where knowledge has added value by being managed. An alternative is to share negative stories of where value has been lost because of not managing knowledge. Eventually, the mind set and culture should change to "knowledge is one of our key resources."

- **Making mistakes is bad.** This can be a very powerful barrier when it comes to capturing knowledge from projects that have gone badly or have failed. The "blame culture" is a powerful disincentive to open and honest knowledge sharing. It is potentially even more of a barrier to knowledge reuse, since people might mistrust knowledge as being "a white wash." Publicizing some high-profile knowledge capture from failed projects most easily breaks this barrier. If employees are able to see that managers are not afraid of learning from failures, and that learning failures is not punished, they may in time become more comfortable with the idea of learning from mistakes. A powerful message from management needs to be that the really punishable mistake is failing to learn from mistakes and thus causing mistakes to be repeated.

- **Information overload.** Employees often complain of being overwhelmed by information, and seem to think that knowledge management will just add to the overload. The response to this should be the reassurance that knowledge management is not about bombarding employees with more and more information, but rather providing them with the tailored knowledge they need at the time they need it.

- **Knowledge under load.** A barrier may occur at the start of a knowledge management programme, when employees look in the "knowledge bank" and find there is nothing in there. There may be nothing for employees to go to, browse, and then learn from. A knowledge manager should start with the exchange of tacit knowledge, using a "connect" (personalization) rather than "collect" (codification) strategy, and at the same time, begin to put material in the bank. To begin, a knowledge manager may perform some knowledge capture and packaging to demonstrate the principle and to begin to build a stock of knowledge capital.

- **No time to share.** The time barrier is a difficult one. Although knowledge management will ultimately save time for the organization, it requires a time investment at the beginning. Knowledge management should begin with knowledge processes that save time for the team in the short term. The project should ensure that the new knowledge processes that are introduced have a minimum time burden. The knowledge manager should teach short, focused processes that are quick and easy and will save time over the life of the project. Any technology initially introduced must be easy to use.

- **Not paid to share.** Knowledge management needs to be embedded into other management processes, such as project management, so that it becomes part of the job rather than an added-on job. When knowledge management becomes part of the job, integrating learning and performance, it is no longer seen as an alternative to the main job. Managing knowledge should be looked upon as part of being paid to do the job. As soon as knowledge management is seen as "part of the job," it becomes part of the reward structure as well.

1.5 Information and Communication Technologies (ICTs) and" Knowledge Management

Information technology has been credited for effective and efficient knowledge management. It has even been thought that when an organization has an information system in place, it is the same as having a knowledge management programme in

place. However, information and communication technologies should only be viewed as tools which make knowledge and information management easier. Organizations in Kenya might be quick to point out that they do not have good knowledge management programmes because of lack of advanced information and communication technologies. Information technology may be useful in knowledge management as it can be used for holding documents that can be shared and re-used, making available lists of subject matter experts and availing knowledge with speed and in time (Lank, 1997:411).

In order to facilitate sharing of knowledge, a strong information technology infrastructure must be in place (Beckman 1999:9). Because of the close link between knowledge management and the various technology drives, knowledge management is often looked upon as a technology issue. Organizations in Kenya as anywhere else would not invest in any technology if they were not sure of its benefits. They indeed have to be assured of both short-term and long-term benefits before investing in any new technology. Government-owned organizations in Kenya, just like the government itself may not be in a hurry to invest heavily in any technology of which they are not sure. "Technophobia", the fear of technology may also be a factor in slowing down the pace at which government-organizations may adapt information technology which may in turn support knowledge management. Many top-level managers in the Kenyan government-owned organizations started working there long before computers became a common working tool.

Knowledge management is however, more about people and organizational culture than it is about technology. It is possible that it is not the technology that may be holding Kenyan organizations back, but a lack of strategy and a failure to build knowledge management in the organizations' day-to-day operations and cultures. Ichijo (2004:126) argues that knowledge is a social product, generated by a close interaction among people. For that reason, Ichijo thinks that knowledge must be generated in a truly empathetic environment, where people care for individual unique experiences.

The new information technology may not be the only tool of managing knowledge and information, but it apparently has a major role to play in the management of

knowledge and information resources. According to Teece (1998:60), the new information technology is dramatically assisting in the sharing of information and knowledge. Teece argues that learning and experience in the organization can be much more readily captured and shared. Knowledge learned in the organization can be catalogued and transferred to other applications within and across organizations and geographies. Information technology can enable rich exchange to take place inside the organization, obviating some of the need for formal structures.

If for any reason an organizational culture does not support a knowledge management programme, the programme is not likely to succeed. It is not as yet known the extent to which organizational culture in Kenya supports or does not support knowledge creation, processing, and sharing. Information and communication technologies (ICTs) may also need to be integrated and related to organizational culture so that they may be used for knowledge transfer, creation of new knowledge, storage and preservation of knowledge, and to promote the sharing of knowledge. It is in the interest of this researcher to find out the extent to which organizational culture in Kenya may support knowledge creation, processing and sharing. Information and communication technologies are not yet very developed and not quite integrated to organizational culture. The researcher would wish to investigate how best the level of development of the ICTs in Kenya may be used to support organizational knowledge management.

Knowledge in the twenty-first century will be an international commodity that will dictate the success and/or failure of organizations, regions and countries. The creation, acquisition and distribution of knowledge are matters of considerable importance for organizational performance and of increasing importance for modern technological societies. This study therefore focuses on how government-owned organizations in Kenya can create, acquire and distribute knowledge effectively, efficiently and cost effectively. The study also focuses on how information technology may help government-owned organizations in Kenya manage knowledge more effectively and efficiently. There is more to information technology than just having it in place. Issues like having staff qualified in information technology and the kind of national information and communication technology policy in place are crucial issues which are however sometimes overlooked. For a long time, Kenya, just like most sub-

Saharan countries, has not had a national information and communication technology policy in place. The policy, which has a lot of implications was recently launched and will be implemented in phases.

1.6 Organizational Environment in Kenya

Organizational culture in Kenya is not a very old concept. Business organizations in most areas in the world have profit making as their primary objective. Before independence in 1964 and long after independence, the government employed most working Kenyans. Up to this day, the government is the biggest employer in Kenya, unlike in the industrialized countries where the private sector is the biggest employer. Those who work in the private sector in Kenya are a minority. Before independence, there were not very many business enterprises with local staff complements. After independence, many government-organizations (parastatals[1]) were established. The major objective of such government-owned organizations was to provide essential services to people and not to make profits. So the environment was relaxed, as most of such organizations were monopolies. Services like telecommunications, transport, banking, farm produce marketing, insurance and postal services were all provided by government-owned organizations in most cases. The government also tried to protect such organizations against competition from privately owned business organizations offering similar services. Some of the major government-owned organizations in Kenya include the Kenya Pipeline Company, the Kenya Bureau of Standards, the Kenya Marines and fisheries Research Institute, the Kenya Ports Authority, the Kenya Revenue Authority the Kenya Tourist Board, Telekom Kenya, the Postal Corporation of Kenya, the Kenya Re-insurance Company among others.

It is thus clear that for a long time, government organizations in Kenya did not face any competition and the issue of competitive advantage did not arise. However, the situation has now changed drastically. Many government-owned organizations in Kenya now face competition from privately owned companies and large-scale privatization of government organizations has taken place and continues to do so. Privatization of government-owned organizations has been one of the major

[1] Parastatals refer to government-owned organizations

conditions of receiving aid from the World Bank and the International Monetary Fund (IMF). Competition is now rife and most government-owned organizations in Kenya must address the issue of competitive advantage. Unlike before, government-owned organizations in Kenya are now expected to make and report some profits annually and sustain themselves.

Government-owned organizations in Kenya must address the issue of providing quality products and services to the people at reasonably affordable prices. In the past, the quality of products and services provided by government-owned organizations was not an issue. Many of the government-owned organizations were monopolies and whether the products and services were poor or not, it did not matter much. Many government-owned organizations not providing what the government considers to be essential services have been privatized in the recent years.

Since the beginning of the 1990s, the World Bank and the International Monetary Fund have been urging the government of Kenya to let go loss-making parastatals by way of privatization. Shortly after independence in 1964, the government of Kenya established over three hundred parastatals. The government-owned organizations were not strictly run as business entities though they were expected to make some profits. A few government-owned organizations made profits, but the majority has always reported losses year-in-year-out. The government of Kenya has therefore been fully funding the loss-making government-owned organizations.

On the advice of the World Bank and IMF, over the last decade the government of Kenya has been privatizing some loss-making organizations but has retained some organizations considered strategic. However, chief executive officers and other top level managers of government-owned organizations are now hired on performance based contracts. If a chief executive or a top level manager does not perform to the expectations of the government, his or her contract is not renewed once it expires. With globalization being felt in every corner of the world, government-owned organizations in Kenya are no longer protected from competition as they used to be. There is now a sense of competition and services provided by government-owned organizations have improved a great deal. The government-owned organizations in

Kenya may not be providing the best of the products and services yet, but there is a remarkable improvement lately (Nyamu, 2006:8).

The researcher has observed that most Kenyan government-owned organizations do not operate in information intensive environments. An organization may be said to operate in a knowledge-intensive environment when it provides intangible solutions to customer problems by using mainly the knowledge of its individuals (Ditillo, 2004:401). Government-owned organizations in Kenya are not in competition with each other. They therefore do not have the urgent need of providing intangible solutions to their customers. Customers of the parastatals are members of the general public who accept services and products of any quality from government-owned organizations. In the Kenyan organizational environment, factors that affect human capital growth according to Liebowitz (1999:5-1) are largely lacking and/or are not emphasized. Such factors include training and education for employees, research skills, entrepreneurship skills, creativity and ingenuity, industry competition, formalized knowledge transfer systems, morale, stimulation and motivation among others.

Systems in Kenya lack conditions that Liebowitz identifies as affecting human capital growth. Formalized knowledge transfer systems and motivation are lacking to a high degree. There has not been any initiative to establish formalized knowledge transfer systems so far. In the Kenyan government-owned organizations, entrepreneurship skills may not be very much emphasized as the organizations are not after making huge profits. The government-owned organizations are not even expected to sustain themselves fully financially. The government allocates money to parastatals in its yearly budgetary estimates and allocations.

Knowledge management is a relatively new concept all over the world. An assessment of how knowledge management is practiced in Kenyan government-owned organizations and the challenges of practicing this managerial concept is the subject of this study. All over the world, knowledge management has been gaining attention in many organizations (Liebowitz, 1999:5-1). Many organizations have created positions for chief knowledge officers to help better manage, share, create and distribute their knowledge-based assets. However, government-owned organizations in Kenya have not as yet been known to create such positions as chief knowledge

officer or even just knowledge officer. This should however not be taken to mean that knowledge does not flow through Kenyan parastatals.

This researcher observes that many government-owned organizations in Kenya are still hierarchically structured. Hierarchy, according to Takeuchi and Nonaka (2004:14) is a highly formalized, specialized and centralized structure, which works well in conducting routine work efficiently on a large scale. From a knowledge-creation perspective, organizational hierarchy is an efficient structure to acquire, accumulate, and exploit knowledge. However, hierarchy hobbles individual initiative because of its strong propensity for control and can be dysfunctional in periods of uncertainty and change. Many changes are taking place currently and the hierarchical structures of the Kenyan government-owned organizations may not be very ideal for knowledge creation and the process of knowledge management in general. The structure of nearly all government-owned Kenyan organizations is the same. At the top of the organizational hierarchy, you would find a managing director who is the chief executive officer of the organization. Very few of the government-owned organizations have one deputy managing director and several assistant directors. Most of the organizations have two deputy managing directors and several assistant deputy directors. The structure of government-owned organizations in Kenya favours a narrow span of control where there are very few employees reporting to one manager as opposed to a wide span of control where very many employees report to one manager and an organization ends up having very few managers. Narrow span control favours bureaucracy.

The information and communication technologies, which are crucial for knowledge management, are further not very well developed in most Kenyan government-owned organizations. There are exceptions to this generalization, but on average, the technologies are not well developed. One might argue that knowledge may as well be managed effectively without the use of information and communication technologies, but the truth is that ICTs must be seen as the backbone of any serious corporate knowledge management programme.

1.7 Statement of the Problem

The reasons for choosing this topic as a subject for research emanated from the researcher's experience as an instructor of Information Resources Management, Organizational Behaviour, Knowledge Management and Communication Studies in the Faculty of Information Sciences, Moi University, Kenya. The researcher further has a great interest in Organizational Information Management and Organizational Knowledge Management in Kenya. Because of the great interest in the aforesaid subjects, the researcher has broadly consulted and interacted with organizational knowledge managers and organizational information resources managers in Kenya, both in the public and private sectors. As a result of consultation and interaction with organizational knowledge managers in Kenya, the researcher has come to realize that organizational knowledge management in Kenya is wanting and leaves a lot to be desired.

This researcher has no doubt that a multitude of knowledge flows through Kenyan parastatals every day. In the organizations that the researcher has interacted with in Kenya, nobody seems to account for the knowledge that their organizations require for present and future needs, how to acquire that knowledge, the kind of knowledge that individual organizational members posses and how to share such knowledge with others. Nobody seems to know whom in the organization needs what knowledge, when and how such knowledge should be delivered. Further, it does not appear to this researcher like those in the top level management in the Kenyan government-owned organizations are aware that knowledge can be generated within their organizations. They also do not seem to realise that some knowledge that may be required is already owned by members of the organizations.

This researcher observes that a number of reasons may account for the ineffective organizational knowledge management in Kenya. The researcher would therefore like to find out if some of the reasons which account for inefficient management of knowledge in Kenyan government-owned organizations include the following:

- Many government-owned organizations in Kenya do not as yet consider knowledge to be a strategic organizational resource; hence, they have not

perceived the need to establish knowledge management programmes, employ qualified knowledge managers and further train them on-the-job.

- Organizational culture in Kenya and organizational environment do not seem to support knowledge creation, knowledge sharing and consequently, Kenyan government-owned organizations do not employ a broad spectrum of techniques and instruments to improve the performance of knowledge management operations.
- This researcher thinks that government-owned organizations in Kenya regard the introduction of knowledge management as a very complex and highly technical problem that they may not easily tackle because of lack of finances, expertise, government support and the prerequisite technology.

Given that knowledge is now considered an important factor of production in the modern corporate world, there is an urgent need to think of how organizational knowledge should be managed effectively in Kenya so that it may enable government-owned organizations to achieve a competitive advantage in the now increasingly global economy. Organizations in Kenya not only have to compete locally, but also regionally and globally.

Lack of professional and competent organizational knowledge managers in Kenya may have serious implications for future organizational knowledge management. It may also have serious implications for the quality of organizational decisions made by the top organizational managers in Kenya. It may also mean lack of proper organizational knowledge management policies. It is important for organizational management in Kenya to be made aware of the fact that organizational knowledge should now be managed systematically like any other important organizational resource. In fact knowledge should be managed like any other strategic organizational resource. Government-owned organizations in Kenya should be made to understand that knowledge is a strategic resource that makes it possible for other organizational resources to be managed more effectively and efficiently.

In view of the foregoing discussion, the researcher is convinced that there is an urgent need for thorough examination of the problem of how to manage organizational

knowledge in Kenya effectively and efficiently and assess whether the existing organizational knowledge management programmes are effective and showing benefits to organizational stakeholders in the country. Every organization, whether it is a profit making one or not for profit, like the Kenyan government-owned organizations, has objectives. Several resources should be deployed to achieve such objectives and it is argued that knowledge should be an important if not a crucial resource that should be deployed to help organizations achieve their objectives.

1.8 Aim and Objectives of the Study

The aim of this study is to assess the practices, procedures and challenges of knowledge management for government-owned organizations in Kenya. It will further investigate the extent to which organizational knowledge management in Kenya may be enhanced and how this could in turn enhance organizational competitive advantage and organizational effectiveness in Kenyan government-owned organizations

The study is based on the following specific objectives:

- To assess the extent to which government-owned organizations in Kenya practice organizational knowledge management and the procedures used in the practices. Knowledge management is a managerial concept and as with many other managerial concepts, not all organizations put all management concepts into practice.

- To find out the extent to which Kenyan government-owned organizations are learning organizations. A learning organization is that which establishes an environment, which enables and encourages employees to learn and acquire new skills, new knowledge, new competencies and new capabilities.

- To establish how government-owned organizations in Kenya determine the knowledge they require, its formats and when the knowledge should be available. Economic factors may not allow an organization to acquire all the knowledge that is available. The format in which knowledge is delivered is important as knowledge may not be used effectively if delivered in formats which are not user-friendly. Information and communication technologies now

play an important role in delivering knowledge in easy to use formats and in a timely manner.

- To find out whether and to what extent individual organizational members are motivated to contribute to knowledge creation and sharing of knowledge in Kenyan government-owned organizations. Once an organizational knowledge management programme has been established, individuals would normally be encouraged not only to contribute towards the creation of new knowledge, but also to share the knowledge they already have and the newly created knowledge as much as possible. Different organizations have different ways of encouraging individuals to create and share knowledge. If individuals are not motivated to create and share knowledge in an organization, then the knowledge management programme may fail. The study attempted to establish in what ways and to what extent individuals in Kenyan government-owned organizations are encouraged to create and share knowledge. Individuals create knowledge and organizations create enabling conditions for creating knowledge.

- To discover the major managerial problems and challenges that government-owned organizations in Kenya face in managing knowledge and suggest possible solutions to such problems and challenges. One would expect considerable challenges and problems when establishing and after establishing organizational knowledge management programmes. The study tried to establish challenges and problems that are unique to the Kenyan organizational environment and those that are universal and can be experienced by any organization operating anywhere. The research further puts forward proposals on how organizational knowledge management practices and procedures may be improved in Kenyan government-owned organizations.

1.9 Research Questions

From the foregone discussions, the following research questions were developed to serve as the framework for the study:

- To what extent and how do government-owned organizations in Kenya practice and apply knowledge management principles?
- How do government-owned organizations in Kenya determine the knowledge they require, its formats and when it should be available and what tools are used for managing organizational knowledge?
- Are individual employees in Kenyan government-owned organizations motivated in any way to contribute towards the creation of new knowledge and sharing of knowledge?
- To what extent does organizational learning happen in Kenyan government-owned organizations?
- What are the major managerial challenges and problems that government-owned organizations in Kenya face in managing organizational knowledge and how may such challenges and problems be overcome?

1.10 Scope and Limitation of the Study

This study was exclusively based on government-owned organizations (parastatals) in Kenya operating in environments considered to be information intensive and whose organizational structures are almost standard. Hierarchical structures, bureaucracy, traditional roles of management and the slow pace of adopting technological changes and managerial styles offered an excellent opportunity to assess the practices, procedures and challenges of organizational knowledge management in the Kenyan government-owned organizations. The organizations selected for the study fall under different government ministries though all of them are financed by the Ministry of Finance through their mother ministries. Funding for the government-owned organizations in Kenya is not even. Some organizations are considered to be of more strategic importance than others.

There are many parastatals in Kenya and some are being privatised either because they are not strategic or do not provide essential services or because they continuously make losses, or both. At the moment, there are no less than fifty government-owned organizations operational in Kenya. They all provide different products and services to the members of the public. Products and services of the government-owned organizations are expected not only to be of high quality, but also affordable. The

researcher interviewed 144 management staff from four of the government-owned organizations. There are several private organizations in Kenya but they were not included in this study. The study was not a comparative study between the way private organizations and government-owned organizations in Kenya manage knowledge.

This study focused on practices, procedures and challenges of organizational knowledge management in government-owned organizations in Kenya. Not all government-owned organizations in Kenya were included in the study. Four government-owned organizations were included in the study, namely Kenya Agricultural Research Institute (KARI), Kenya Intellectual Property Institute (KIPI), National Council for Science and Technology (NCST), and Kenya Industrial and Development Research Institute (KIRDI).

A wider sample would have been interesting, but time and financial resources would not allow. A wider sample would have expanded the study to a size that could not be manageable considering the time and financial resources which were available to the researcher. The study may not have made a detailed evaluative study of practices, procedures and challenges of organizational knowledge management in government-owned organization in Kenya, but it may serve as a good starting point of research into several aspects of organizational knowledge management in Kenya.

1.11 Significance of the Study

To the best knowledge of this researcher, no structured research into any aspect of organizational knowledge management has been conducted in Kenya. Therefore, very little, if any is known about effective organizational knowledge management in the Kenyan context. Knowledge management continues to burgeon in importance as more and more organizations continue recognizing knowledge as a crucial factor of production both in Kenya and elsewhere in the world. The researcher hopes that the findings of this study will elucidate the knowledge management scenario in Kenya and suggest possible ways of improving knowledge management practices and procedures within Kenyan government-owned organizations, and thus also the productivity and competitive edge of the organizations.

1.12 Source Material

Literature was reviewed from journals, both electronic and hard copies, conference papers, research publications and international organizations' official publications, such as the World Bank, IMF, UNDP and books. The researcher made every effort to use the latest publications on several aspects in knowledge management. The major source of the latest publications in knowledge management was the Internet. Some specific databases were consulted to provide the required information. Among the databases/hosts/websites consulted and searched were: EmeraldInsight services, EBSCOhost databases, Science Direct databases, Communication of Association for Information Systems databases and JSTOR Business Collection databases. Websites of individual organizations like the World Bank, UNESCO and United Nations Development Programme were also searched. The World Bank, UNESCO and the United Nations Development Programme have interest in various aspects of knowledge management. The three institutions have particular interest in knowledge for development and indigenous knowledge.

Journals and books from the University of Cape Town Library were very useful. Some books were not available in the University of Cape Town Library but could be availed through inter-library loans arrangement.

1.13 Dissemination of Research Findings

Research findings of this study are primarily disseminated via this thesis. Some parts of research findings will be disseminated through conference papers, seminar presentations, workshops, articles in refereed journals and lectures.

1.14 Organization of Thesis

This thesis is divided into seven chapters as follows:

Chapter 1 Introduction and background to the study

Conceptual Setting, Knowledge Management, Information and Communication Technologies (ICTs) and Knowledge Management, Organizational Environment in Kenya, Statement of the Problem, Aim

and Objectives of the Study, Research Questions, Scope and Limitation of the Study, Significance of the Study, Source Material, Dissemination of Research Findings, and Organization of Thesis.

Chapter 2 Theoretical Framework:

Theories of Knowledge
Management, Organizational/Corporate Knowledge
Management, Definitions of Operational Concepts.

Chapter 3 Issues in Knowledge Management:

Review of related literature under various broad headings i.e. Knowledge Management; Organizational/Corporate
Knowledge Management; Tacit Knowledge; Explicit
knowledge; Artificial Intelligence; Competitive Advantage; Strategic Resources; Knowledge Management Projects; Knowledge Managers; Chief Knowledge Officer; Organizational Learning; and Learning Organization.

Chapter 4 Research Methodology:

Detailed explanation of research design and methods, target population, research techniques and instruments, data collection procedures and problems, ethical considerations.

Chapter 5 Data Presentation and Analysis:

Interpretation of data using tabulations, tables, charts, figures and description.

Chapter 6: Summary of Research Findings, Discussion, Conclusions and Recommendations

A summary of detailed reports of important and relevant issues arising from the research findings, discussion of the findings, conclusions and recommendations.

References

Appendices

1.15 Summary

This chapter gives the general introduction of the study. It discusses the concept of knowledge management in general and goes on to give the background of the

environment in which government-owned organizations operate. The chapter discusses the state of information and communication technologies in Kenya and the use of information and communication technologies in the government-owned organizations which were investigated. The chapter sets the aim, objectives and research questions raised in the research. The next chapter is on the theoretical framework of the study.

CHAPTER TWO
THEORETICAL FRAMEWORK

2.1 Introduction

This study aimed at assessing the practices, procedures and challenges of knowledge management in government-owned organizations in Kenya. Conducted against the backdrop of organizational/corporate knowledge management, the study sought to find out if and how knowledge that flows through the government-owned organizations is captured, organized, stored and retrieved when needed by organizational members. The study also sought to find out the kind of managerial problems and challenges that the management of knowledge poses to those in the managerial positions in the government-owned organizations in Kenya and suggest solutions to such problems and challenges. Taking into account the important role that information and communication technologies play in knowledge management, the study sought to investigate the status of ICTs in government-owned organizations in Kenya as a means of assessing ICT capacity in organizational knowledge management with specific reference to Kenyan government-owned organizations. This chapter outlines the theoretical framework for the study. It reviews the conceptual background in the discipline of knowledge management and discusses the Resource-based Theory of the Firm and how this theory applies to organizational/corporate knowledge management.

As a discipline, knowledge management is still at its nascent stages and has not developed distinct theories. However, the aim and objectives of this particular study persuaded the researcher to consider conceptual and theoretical frameworks grounded on the Resource-based Theory of the Firm.

2.2 Resource-based Theory of the Firm

The resource-based theory stipulates that a firm's distinctive competencies are based on its resources and capabilities, which may be represented by tangible assets such as patented inventions, or intangibles such as reputation, brand image, or human skills (Burton-Jones, 1999:28). Burton-Jones further says that according to the resource-

based theory, firms expand by utilizing these pre-existing resources. Many theorists who are protagonists of the resource-based theory also advance the proposition that sustainable competitive advantage is mainly derived from the inimitability of a firm's resources.

Burton-Jones further argues that recent research has centered on human capital resources defined as the training, experience, judgment, intelligence, relationships and insight of managers and workers in a firm. He thinks that this focus has been partially responsible for an emerging knowledge-based theory of the firm. The knowledge-based theory, according to Burton-Jones, draws upon resource-based theory and other research streams including epistemology, organizational learning, organizational capabilities, innovation, and new product development. In his argument, Burton-Jones outlines key assumptions involved in the emerging knowledge-based theory of the firm as:

- Knowledge is the key productive resource of the firm.
- Knowledge is acquired by and, in the case of tacit knowledge, stored by individuals.
- Due to time and cognitive limitations of human beings, individuals need to specialize in the knowledge they acquire.
- Production, (value creation through translation of inputs into outputs) typically requires numerous different types of specialized knowledge.

The primary role of the firm, according to knowledge theorists, is therefore the protection and integration of knowledge (Burton-Jones, 1999:30).According to Teece (1998:75), the firm is nothing but a repository of knowledge – the knowledge being embedded in business routines and processes. A firm has a knowledge base which includes its technological competencies as well as its knowledge of customer needs and supplier capabilities. These are competencies which largely reflect individual skills and experiences as well as distinctive ways of doing things inside organizations. In a situation where such competencies are difficult to copy and are effectively deployed and redeployed in the market place, they can provide the basis for competitive advantage.

Teece further argues that the essence of the firm is its ability to create, transfer, assemble, integrate, and exploit knowledge assets. He says that knowledge assets underpin competencies, and competencies in turn underpin the firm's products and service offerings to the market. The firm's capacity to sense and seize opportunities, to reconfigure its knowledge assets, competencies, and complementary assets, to select appropriate organization forms, and to allocate resources astutely and price strategically, all constitute a firm's dynamic capabilities.

Teece (1998:76) looks at competitive advantage as that which can be attributed not only to the ownership of knowledge assets and other assets complementary to them, but also to the ability to combine knowledge assets and other assets required to create value. The ability to know what assets to develop, and what to abandon, is a critical element in the success equation. Dynamic capabilities are critical if knowledge assets are to support sustainable competitive advantage.

From a strategic management point of view, Grant (1996:109) attempts to come up with what he calls a knowledge-based theory of the firm. Grant conceptualizes a firm as an institution for integrating knowledge. Knowledge is viewed as residing within the individual and the primary role of the organization knowledge application rather than knowledge creation. In other words, knowledge already exists within the individual employees of the firm and it is the role of the organization to apply the knowledge residing in the organizational individuals to come up with superior products and services.

Grant (1996:100) concedes that the emerging "knowledge-based view" is not as yet, a theory of the firm. It is not yet a theory of the firm because there is insufficient consensus as to its precepts or purpose, let alone its analysis and predictions, for it to be recognized as a theory. The knowledge-based view represents a confluence of long established interests in uncertainty and information with several streams of newer thinking about the firm. To the extent that it focuses knowledge as the most strategically important of the firm's resources, Grant looks at the knowledge-based view as an outgrowth of the resource-based view.

The knowledge-based view may not be recognized as a theory of the firm as yet, but Grant says that it is central to several very distinct research traditions like organizational learning, the management of technology, and managerial cognition. The issues with which the knowledge-based view concerns itself go beyond the traditional concerns of strategic management – strategic choice and competitive advantage. The knowledge-based view addresses some other fundamental concerns of the theory of the firm like coordination within the firm, organizational structure, the role of management and the allocation of the decision-making rights, determinants of firm boundaries, and the theory of innovation. Grant has not quite come up with a knowledge-based theory of the firm, but he has tried to develop some key elements of a knowledge-based theory of the firm by synthesizing some of the principal contributions to an emerging field which has yet to develop its own theories.

Writing in 1997, Hannes and Lowendhl are quoted by Johanson, Martensson and Skoog (2001:415) as criticizing resource-based theory as focusing excessively on resources. They argue that the real challenge should be to energize people in the organization to better utilize and build on available resources. They further argue that to gain a full understanding of key organizational processes, it is more effective to study activities rather than resources.

The researcher finds the resource-based theory of the firm to be relevant to this study for a number of reasons. This study takes into account the fact that an organization's competencies are based on its resources and capabilities, some of which may be intangible such as human skills, tacit knowledge and experience. Such skills, knowledge, experience and capabilities are acquired through training, learning and practical work experience. This study attempts to find out the extent to which organizational learning takes place in the government-owned organizations in Kenya. Organizational learning enables employees to acquire new skills, knowledge and capabilities.

2.3 Knowledge

The term "knowledge" is not new as ancient scholars such as Plato and Aristotle in their philosophical works have addressed it extensively. They have even attempted to

define it and explain its place in society. However, knowledge management as an academic discipline is still relatively young. Phrases like "knowledge society"' and "knowledge economy" started appearing in the 1990s and may be a little earlier. Knowledge is a broad and abstract notion that has defined epistemological debates in Western philosophy since the classical Greek era (Barnes, 2002:16). Barnes further argues that these have been expressed from a variety of perspectives and positions, including the rationalist perspective advanced by philosophers such as Descartes in the seventeenth century, the empiricist perspective advanced by Locke and others in the eighteenth century, and the interactionist perspective advanced by Kant and others in the nineteenth century.

The rationalism perspective argues that true knowledge is not the product of sensory experience but some ideal mental process. This perspective has it that there exists a priori knowledge that does not need to be justified by sensory experience. According to the rationalist perspective, knowledge can be attained deductively by appealing to mental constructs such as concepts, laws and theories. Empiricist perspective claims that there is nothing like a priori knowledge and that the only sure source of knowledge is sensory experience. According to the empiricist perspective, everything in the world has an intrinsically objective existence; even when one has an illusory perception, the very fact that something is perceived is important. This perspective contends that knowledge is derived inductively from particular sensory experiences. The interactionist perspective claims that knowledge arises only when both rationalism and empiricism work together. According to the interactionist perspective, knowledge begins with sensory perception, which becomes more subjective and rational through a dialectic purification of the senses, and at last reaches the stage of self-knowledge.

Huber (1991:89) defines knowledge as interpretations of information, beliefs about cause-effect relationships or more generally "know-how." Nonaka (1994:15) views knowledge as a multifaceted concept with multi-layered meanings. He avers that the history of philosophy since the classical Greek period can be regarded as a never-ending search for the meaning of knowledge. Nonaka however adapts the simple definition of knowledge as justified personal belief that increases an individual's capacity to take effective action.

Nonaka and Konno (1998:42) identify two different types of knowledge as explicit and tacit. Explicit knowledge, they argue, can be expressed in words or numbers and can be shared in the form of data, scientific formulae, specifications, manuals and the like. This is the kind of knowledge that can be readily transmitted between individuals formally and systematically. Tacit knowledge on the other hand is highly personal and difficult to communicate or share with others. Subjective insights, intuitions, and hunches fall into this category of knowledge. Tacit knowledge is deeply rooted in an individual's actions, experience as well as in the ideals, values, or emotions he or she embraces. In the literal thinking, tacit knowledge is what may be taken to be true knowledge as it is personal. Gardoni, Frank and Vernadat (2005:57) go further to classify knowledge as semi, structured and non-structured. They classify semi-structured knowledge as mainly written information such as reports, minutes of meetings, articles and etc. On the other hand, structured knowledge is harnessed from non-structured information such as user dialogues or e-mail exchanges.

Burton-Jones (1999:5) gives definitions of data, information and knowledge. He seems to think that the three are usually taken to be one and the same thing but they are quite different in fact. He starts by defining data as any signals which can be sent by the originator to the recipient. He defines information as data which are intelligible to a recipient. Burton-Jones defines knowledge as the cumulative stock of information and skills derived from use of information by a recipient.

In the words of Davenport and Prusak (1998:5), most people have an intuitive sense that knowledge is broader, deeper, and richer than data or information. People are fond of speaking of a "knowledgeable individual" when they refer to someone with thorough, informed and reliable grasp of a subject. People also talk of a knowledgeable person when they refer to someone who is both educated and intelligent. It is very unlikely for people to talk of a knowledgeable or even a knowledge-full memo, handbook or database, even though these might be produced by knowledgeable individuals or groups. Davenport and Prusak give their working definition of knowledge thus:

> *Knowledge is 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 (Davenport and Prusak, 1998:5).

Davenport and Prusak's definition of knowledge illustrates that knowledge is not obvious or simple. Knowledge is made up of different elements; it is fluid as well as formally structured; it is intuitive and therefore hard to capture in words or understand completely in logical terms. Basically, knowledge is possessed by people and forms part and parcel of human complexity and unpredictability. Other organizational assets may be discernible and easily defined, but knowledge assets are much harder to identify and define.

Pearlson and Saunders (2004:277) also look at knowledge as a mix of various elements. They see knowledge as a mix of contextual information, experiences, rules, and values. They contend that knowledge is richer and deeper than information, and also more valuable because someone has thought deeply about that information and added his/her own unique experience, judgment, and wisdom. Pearlson and Saunders further say that one way of thinking about knowledge is to consider the different types of knowing. "Knowing what" is often based on assembling information and eventually applying it. "Knowing what" requires the ability to recognize, describe and classify concepts and things.

The process of applying knowledge helps generate understanding of an appropriate sequence of events or the ability to perform a particular set of actions. Pearlson and Saunders add that, sometimes, the first inkling of knowing how to do something stems from an understanding of procedures, routines and rules. Values and beliefs are also a component of knowledge as they determine the interpretation and organization of knowledge (Davenport and Prusak, 1998:12). According to Davenport and Prusak, values and beliefs determine what the knower sees, absorbs, and concludes from his/her observation. People with different values see different things in the same situation and organize their knowledge differently depending on their values.

Tiwana (2002:37) sees knowledge as actionable information. Tiwana says that *actionable* refers to the notion of relevant and being available in the right place at the right time, in the right context, and in the right way so that anyone (not just the product) can bring it to bear on decisions being made every minute. Tiwana looks at

knowledge as the key resource in intelligent decision making, forecasting, designing, planning, diagnosis, analysis, evaluation, and intuitive judgment. Knowledge is formed in and shared between individual and collective minds. Knowledge does not grow out of databases but evolves with experience, success, failures, and learning over time.

Wiig (1995:1) looks at knowledge as the insights, understandings, and practical know-how that all people possess. To him, knowledge is the fundamental resource that allows people to function intelligently as individuals and as organizations. Over time, considerable knowledge is transformed to other manifestations, such as books, technology, practices and traditions/cultures within all kinds of organizations and in society in general. These transformations result in cumulated expertise and, when used appropriately, increased effectiveness. Wiig looks at knowledge as one – if not the – principal factor that guides personal, organizational, and societal intelligent behaviour.

Wiig (1995:22) sounds reluctant to define or give meaning of knowledge. He says that philosophers and epistemologists have for long tried to understand knowledge as well as define it. However, Wiig gives what he calls operational definitions of knowledge and related concepts according to conceptual levels and the characteristics the conceptual knowledge levels exhibit. Wiig starts with goal-setting or idealistic knowledge. Wiig argues that part of this knowledge is well known to people and it is explicit. This, according to Wiig is knowledge that people work consciously with. There is also what Wiig calls "vision and paradigm" knowledge. Much of this knowledge is embedded in our visions and mental models. This knowledge is well known, it is tacit and only accessible unconsciously.

Systematic knowledge system, schema and reference. This is the type of knowledge that Wiig calls methodology knowledge. This represents our knowledge of underlying systems, general principles, and problem-solving strategies. This kind of knowledge is to a large extent explicit and well known to us. This is knowledge that is documented, transferable and can be stored in some kind of medium. Pragmatic knowledge is the knowledge that we need for decision-making. It is practical knowledge and mostly explicit. This is the knowledge that supports our every day's work and decisions

which we make. This knowledge is well known and it is knowledge that we use consciously.

Automatic knowledge, according to Wiig, is routine working knowledge. This is knowledge that people know so well that they have embedded it in their minds. Most of this knowledge is tacit and people use it to perform tasks automatically. This is knowledge that people use without conscious reasoning.

Looking at knowledge from an epistemological point of view, Fuller (2002a:X) does not agree with what he calls the "Cartesian" attempt to reduce knowledge to some variant of "justified true belief." He sees this as an artificial specification of what counts as knowledge, in which "belief" condition has privileged creatures with a conscience, or consciousness, as knowledge-bearers. He however concedes that some notion of "truth" and "justification" (at least in the weak sense of demonstrating correspondence to standard) is ordinarily implied by "knowledge." Fuller thinks that this condition alone permits knowledge to be attributed equally to brains, books and databases.

Fuller's interest is less in what people really believe in than in how knowledge operates as a principle of social organization – for example, by motivating people to act in certain ways with regard to each other and their immediate and distant environments. Fuller is drawn to Foucault, behaviourism, and rhetoric – all of which share a preoccupation with knowledge as a means to produce certain effects, regardless of the agents' beliefs, unless those beliefs contribute to the production of relevant effects. Fuller seems to be of the opinion that knowledge should not be categorized into tacit and explicit categories only. He also seems to say that tacit knowledge and explicit knowledge should not be considered to have the same value.
All the above definitions of knowledge seem to closely link knowledge, data and information. It is no wonder that knowledge, information and data are taken by many people to mean one and the same thing. When the three are arranged in a hierarchical manner, knowledge is usually put on the top of the hierarchy, followed by information and data which are put at the bottom of the hierarchy. The three share certain important characteristics. Knowledge, information and data can be identified, can be

owned, can be preserved in some media, can be retrieved for use when needed and can be disseminated to users.

2.4 Historical perspective of the "knowledge society"

Historically, the evolution of organizational knowledge theories has been informed by a wide spectrum of theoretical traditions (Patriotta, 2003:16). Patriotta looks at knowledge as a multifaceted phenomenon which has been debated in a variety of disciplinary contexts: from philosophy and sociology, to social psychology and cognitive science; from economics to management and organizational analysis. The breadth and depth of the subject makes it difficult to trace a genealogy of existing knowledge theories.

The term "knowledge" has been in existence for as long as man has been in existence. However, phrases like knowledge-based economy and "knowledge society" are recent phrases which were coined not too long ago. "Knowledge-based economies" are tied to the accelerating and unprecedented speed at which knowledge is created, accumulated and, most probably will depreciate (David and Foray, 2002:10). The trend of creation and accumulation of knowledge has resulted in intense scientific and technological progress. However, this trend has not been realized in every sector nor has it been realized in every region of the world. Even in the countries where the trend has been realized, some regions are yet to realize the trend. Scientific and technological progress may have been realized mostly in the industrialized countries. As a result of the growth of knowledge creation and accumulation, economic historians have pointed out that productivity and growth of different countries have less to do with distribution of natural resources than to do with the capacity to improve the quality of human capital and factors of production. In other words, economies are concentrating on the creation of new knowledge and ideas and incorporating them into equipment, thus having an impact on people.

The twentieth century saw economic growth characterized by growth in the share of intangible as opposed to tangible capital. David and Foray divide intangible capital into two main categories. Category one is investment geared to the production and dissemination of knowledge as in training, education, research and development. The

second category is the investment geared to sustaining the physical state of human capital (health expenditure). Heavy investment in intangible capital is possible in economies where tangible capital already exists. In the industrialized economies, a lot has already been invested in tangible capital. Information infrastructure, health infrastructure and other important infrastructure have been well developed over the years. Such economies are now ready to invest in intangible capital without which a knowledge economy may not be realized.

2.4.1 Knowledge society

For sometime, there has been talk of a "knowledge society" though there has not been agreement on what a knowledge society is. No single definition of the knowledge society has been universally accepted. However, some characteristics of a knowledge society have been outlined by a number of researchers. It is no surprise because even the "information society", which supposedly preceded the knowledge society, has so far not had a universally accepted definition. Only characteristics of an information society, many of which are similar to the characteristics of the knowledge society have so far been identified.

Drucker (1993:5) claims to have foreseen the coming of the "knowledge society" as early as 1960. In the knowledge society that Drucker foresaw coming, "the basic economic source" would no longer be capital, or natural resources or even labour, but knowledge. In the "knowledge society", knowledge workers are supposed to play a central role according to Drucker (1993:7). Managing a self-transformation is one of the most critical challenges that all organizations would face in the knowledge society according to Drucker. In the "knowledge society," the organization as we know it today must be prepared to abandon knowledge that has become obsolete to create new things through: (1) continuing improvement of every activity; (2)development of new applications from its own successes; and (3) continuous innovation as an organized process.

Nonaka and Takeuchi (1995:226-7) contend that we have now entered the "knowledge society" in which knowledge is just another resource alongside the traditional factors of production of labour, capital, and land. Of all the resources,

Nonaka and Takeuchi consider knowledge to be the most critical resource. They argue that managers will perceive that the future belongs to the "knowledge workers." Nonaka and Takeuchi describe knowledge workers as those who use their heads instead of their hands, and the key to future prosperity lies in educating and training these workers.

Lane (1966:650) talks of a "knowledgeable society" in which there is much knowledge and where many people go about the business of knowing in a proper fashion. Lane outlines some parameters which he says may approximately define a knowledgeable society as one in which, more than other societies, its members:

(a) inquire into the basis of their beliefs about man, nature and society;
(b) are guided (perhaps unconsciously) by objective standards of veridical truth, and, at the upper levels of education, follow scientific rules of evidence and influence in inquiry;
(c) devote considerable resources to this inquiry and thus have a large store of knowledge;
(d) collect, organize, and interpret their knowledge in a constant effort to extract further meaning from it for the purpose at hand; and
(e) employ this knowledge to illuminate (and perhaps) modify their rules and goals as well as to advance them (Lane, 1966:650).

Lane looks at the knowledgeable society from the sociological view point and he adds that just as the "democratic society" has a foundation in governmental and international relations, and the "affluent society" a foundation in economics, so the knowledgeable society has its roots in epistemology and the logic of inquiry. In order to support such an epistemological effort, a society must be open, i.e. free discussion must be allowed on every topic, with the outer limit posed not by threats of social change, but by concern for survival as a society. The society must be stable enough to maintain the order necessary for the process of inquiry, trusting enough to encourage cooperative effort and acceptance of each other's "findings," rich enough to educate its population in the modes of inquiry, dissatisfied or curious enough to want to know more. Lane expresses the view that the elements of a knowledgeable society are present in some degree in every society though in the knowledgeable society, they are present to the highest degree.

Some of the issues that Lane raises are very relevant to organizational knowledge management. Learning from each other may approximately translate to knowledge transfer, which is a pertinent issue in knowledge management. Education and/or training are very important issues in knowledge management. Education and training enable employees of an organization to acquire new relevant skills and knowledge. Cooperative effort may approximately translate into communities of practice or collaboration, both of which are important and relevant issues in knowledge management.

There is the impression created that the knowledge society is yet to come. However, Gibbons *et al.* (1994:3) are convinced that the "knowledge society" is already here and it is not a society that will be there in the distant future. According to Gibbons *et al.,* there has been a transformation from Mode 1 to Mode 2 forms of knowledge production. They contend that the traditional kind of knowledge characteristic of Mode 1 is linear and almost exclusively academic in orientation. On the other hand, Mode 2 knowledge production is non-linear and reflexive in orientation. Gibbons *et al.* outline the differences between Mode 1 and Mode 2 knowledge production as:

> *In Mode 1 problems are set and solved in a context governed by the largely academic, interests of a specific community. By contrast, Mode 2 knowledge is transdisciplinary. Mode 1 is characterized by homogeneity, Mode 2 by heterogeneity. Organizationally, Mode 1 is hierarchical and tends to preserve its form, while Model 2 is more heterarchical and transient. Each employs a different type of quality control. In comparison with Mode 1, Mode 2 is more socially accountable and reflexive. It includes a wider, more temporary and heterogeneous set of practitioners, collaborating on a problem defined in specific and localized context (Gibbons, et al., 1994:3).*

It appears Gibbons *et al.* seem to suggest that the knowledge society has the Mode 2 knowledge production characteristics. Delanty (2001:150) argues that one of the chief characteristics of knowledge in a knowledge society is the growing importance of the cognitive dimension. Knowledge should be regarded as being more than just science or information; it also entails the deeper level of cultural models. From a sociological view point, Delanty says that knowledge could be considered as a socially constructed structure having a creative as well as an intellectual dimension. However, knowledge is more than a social construction; it is also an open structure that admits of internal development.

Evers and Menkhoff (2004:123) see the knowledge society as one showing the following characteristics:

- Its members have attained a higher average standard of education in comparison to other societies and a growing proportion of its labour force is employed as knowledge workers. There is a significant reduction in the number of people working in operational roles, while employment in professional, knowledge-based roles has risen.
- Its industry produces with integrated artificial intelligence (usually with the help of information technology).
- Service-based industries, retailing etc. are also undergoing dramatic changes as indicated by an increasing number of virtual stores such as Amazon.com or CD World.
- Its organizations – private, government and civil society – are transformed into intelligent organizations.
- There is increased organized knowledge in the form of "digitalized" expertise, stored in data banks, expert systems, organizational plans and other media.
- There are multiple centres of expertise and a polycentric production of knowledge.
- There is a distinct epistemic culture of knowledge production and knowledge utilization.
- There is the growing importance of the so-called communities of practice in and between organizations, i.e. self-organizing informal social structures which have the capacity to create and use organizational knowledge through informal learning and mutual engagement to leverage both internal and external stakeholders.

Evers and Menkhoff (2004:124) believe that experts and consultants, whom they refer to as knowledge workers, to be of strategic importance in a knowledge society. Experts and consultants sell knowledge according to Evers and Menkhoff. Experts and consultants either work as free-lance self-employed professionals or as members of consultancy firms. Experts and consultants are distinct from producers as well as from end-users of knowledge, very much like traders and trading companies buy and

sell goods and services. Consultants do not own any physical means of production (at least not to a significant degree), but they have access to information and experience. Evers and Menkhoff state that the number of consultants and experts is growing world-wide and the quality of their professionalism is a bench-mark for the stage which a knowledge economy and a "knowledge society" have reached. The social function of experts and consultants is, among other things to enable and to legitimize political action. Without experts and consultants, the political decision making machine would not be able to function. Politicians and bureaucrats can and do off-load their responsibilities to experts and consultants and can more easily escape blame if they fail in their assessment as they can easily pass off the blame to experts and consultants without losing their political legitimacy.

Evers and Menkhoff give three major reasons to account for the strategic importance of experts and consultants in a knowledge society. First is the growth of ignorance, which will increase the demand for expert knowledge. Globalization brings about a vast increase of what people know, but a realization of an even greater amount of ignorance, i.e. of what we know we do not know. While knowledge is increasing fast, the knowledge of what we do not know is increasing even faster. The fundamental problem is that it posits a universe which can be split into what is known and what is presently unknown: this suggests that knowledge is tangible and fixed rather than being a social construct. Secondly is the increasing rather than diminishing marginal utility of the use of knowledge, which will add importance to, specialist expert knowledge. Knowledge as a factor of production has grown in importance in relation to other factors of labour and capital. Whereas other goods succumb to the law of diminishing returns, knowledge actually experiences rising marginal utility. The more an expert or groups of consultants or organization know, the more valuable become individual pieces of knowledge. In other words, it takes knowledge to utilize knowledge effectively. Thirdly is the usefulness of expert knowledge as legitimization of political decisions. Experts reduce the inscrutable complexity of the globalized world and allow planners, politicians, business executives and other decision makers to base their actions on executive summaries of reports prepared by experts and management consultants, rather than on their own knowledge. Ignorance is thus transformed into knowledge. From the perspective of the firm, experts and consultants provide "instant knowledge" and "instant solutions."

The university may have a role to play in the knowledge economy, but according to Osborne (2004:436), it should not be the exclusive focus for any sociology of knowledge production, at least not in the modern so-called knowledge society. Many people now work within fields of knowledge that are at some remove from academic life. Such people may work in research laboratories of major companies, in think tanks, in independent research organizations, in government or in the media. Such are the workers who according to the typology of experts, counselors and advisors, for who knowledge is an "immediate productive force" (Stehr, 1994:185). These are the technicians and "knowledge-based workers" in industry and government for whom knowledge is not just a means of work but an end product of work, the "professional and related service" sectors that according to Stehr, make up between 20 and 25 per cent of the work force of most Western industrialized countries.

A knowledge society may not presently have a clear-cut universally accepted definition, but some characteristics of what is expected of it have been prominently alluded to. Some of the characteristics expected of a knowledge society may include but are not limited to economies depending on knowledge for growth, provision of superior products and services, highly trained and educated people in society, and knowledge eventually replacing the traditional resources of production – labour, land and capital. In a knowledge society, organizations and governments are expected to train and educate their employees continuously.

2.4.2 Phases in the History of Knowledge Management

The history of business organizations, which are mostly associated with knowledge management, is not the history of an activity whose underlying principles and structures date from time immemorial (Hatchuel, Masson and Weil, 2002:26). According to Hatchuel, Masson and Weil, the history of firms is a history of endless new beginnings and of major functions, which, step-by- step, have enabled the structuring and regulation of business activity via the creation of new forms of expertise. As a result, at certain key moments in history and in certain social-economic contexts, firms became aware that certain skills had to be methodically pursued, produced, and possessed by specific protagonists or made generally available. These are the changes which Hatchuel, Masson and Weil say resulted in the

implementation of a set of procedures, or training measures now covered by the term "knowledge management".

Hatchuel, Masson and Weil specifically trace the history of knowledge management to the Taylorist movement, the research laboratory, the administrative expert. Taylor agitated for the training of personnel in production skills, which in a way marked the beginning of knowledge management. The research laboratory in the early years of the twentieth century became a knowledge management mechanism for ensuring the production, distribution, and capitalization of certain specific skills. The beginning of the twentieth century was also marked by the appearance of management skills often referred to as "administrative "or "executive" science. The twentieth century saw a lot of emphasis put on administrative and executive skills. These are skills which could be acquired by training, both formally and on-the-job or informally. In the twenty-first century, the emphasis on managerial and administrative skills still continues.

Tiwana (2002:7), as shown in figure 2-1 below, traces the history of knowledge management to the 1950s when focus shifted toward distributed expertise and knowledge. In the 1950s, the popular managerial concepts included management by objectives (MBO), Program Evaluation and Review Technique (PERT), diversification and electronic data processing. The 1960s saw concepts such as Theory Z, conglomeration, T-groups and centralization and decentralization emerge.

In the 1970s, Tiwana says the concepts of strategic management, the experience curve, portfolio management and automation emerged. Tacit knowledge became part of the managerial practices picture during the decade of the 1970s. In the 1980s, cultural specificity was recognized as Total Quality Management, management by walking around, corporate culture, Theory Z and downsizing captured the attention of management scholars and practitioners.

In the 1990s, Tiwana says learning, unlearning and experience were taken into account. The issues of core competencies, the learning organization, reengineering, strategic information systems, intranets and extranets as well as market value emerged. The 2000s saw knowledge management emerging as the unifying corporate

goal. The 2000s saw knowledge management; intellectual capital, enterprise integration, and knowledge sharing culture emerge as major managerial concepts.

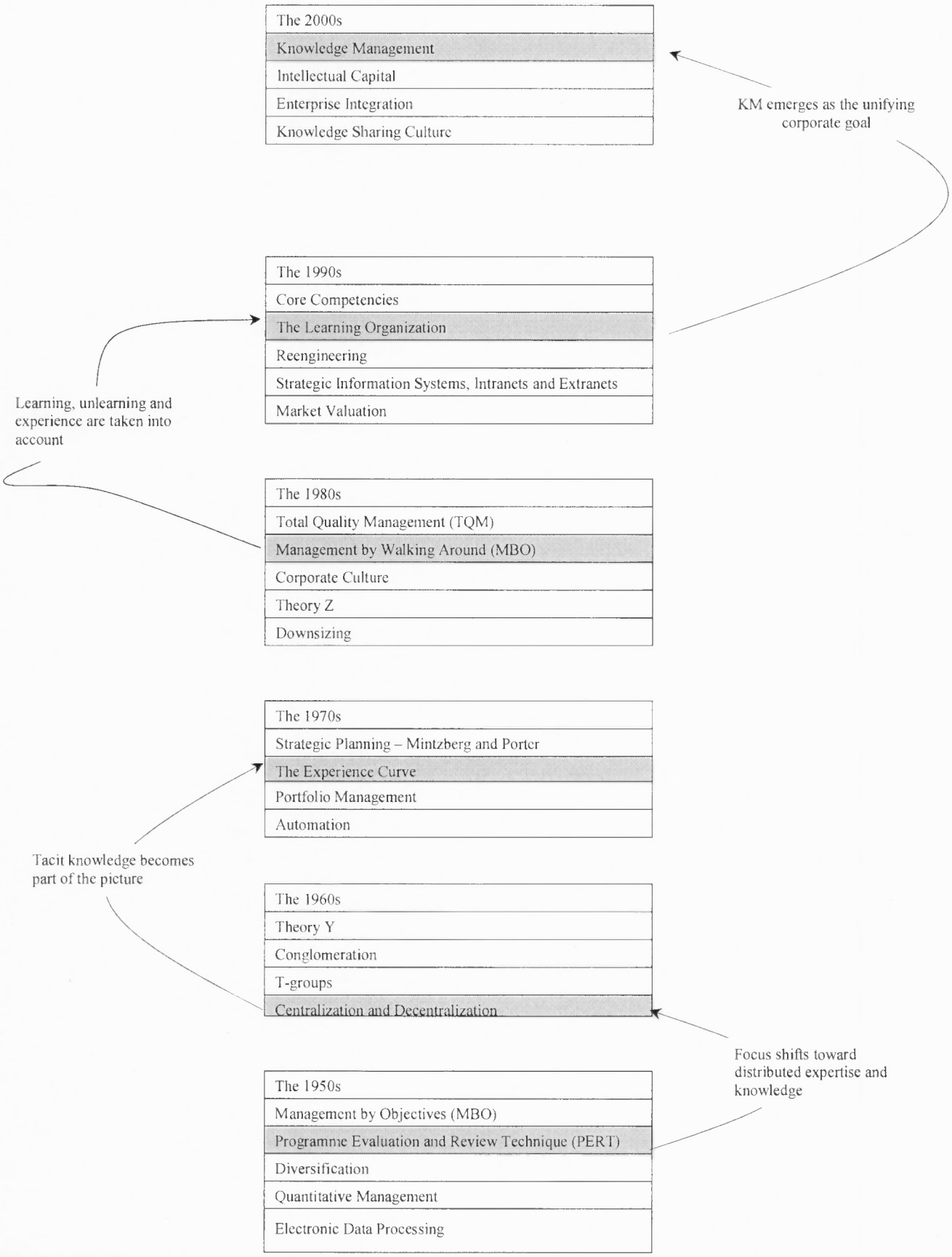

Figure 2-1 Managers' tools through the decades: adapted from Tiwana, 2002.

Wiig (1997b:4) traces the development of knowledge management through several historical economic stages. He states that economic focus has shifted over time. Economic focus has gone through pursuing operational excellence, pursuing product leadership and presently, advanced organizations focus on creating ingenious solutions and developing broad relationships to enable customers to succeed in their business (by pursuing customer intimacy). Wiig argues that the present emphasis on knowledge management has resulted naturally from the economic, industrial, and cultural developments that have taken place over the years. According to Wiig, in the opinion of many management pundits, the "knowledge society" is already here. This is a notion based on the new emphasis and explicit dependence on adding competitive value to products and services by application of direct or embedded human expertise-knowledge. There has been a considerable change from providing value by relying on natural resources or operational efficiency as was the case in past eras.

Wiig traces the historical development of knowledge management through the dominant economic stages of agrarian economics, natural resources economics, industrial revolution, product revolution, information revolution and finally, knowledge revolution. During the agrarian revolution, focus was on agriculture, success and viability were determined by farming skills. Knowledge *per se* was generally not recognized. During the natural resource period, the focus was on natural resource exploitation and knowledge skills started to be recognized.

During the industrial revolution of the 18th and 19th centuries, there was new focus on operational excellence through efficiency. People and technology were used to provide goods and services at acceptable quality and at affordable or lowest prices. Knowledge was recognized during this economic development stage. During the first half of the 20th century, the product revolution emerged. The focus was on product leadership through variability and sophistication. Recognition of the value of broad knowledge had not changed from the industrial era and was still not largely explicit.

Wiig (1997b:5) traces information revolution to the second half of the 20th century. The combined focus of operational excellence and product leadership continued. During the information revolution, information technology became available and resulted in closer control of manufacturing, logistics and marketing. These

developments led to extensive information gathering and exchanges between enterprises, suppliers and customers. Wiig states that the information technology developments made possible many important managerial practices such as Total Quality Management, just-in-time deliveries, point-of-sale analysis, and automatic process control. Wiig credits information technology for making possible new services not previously possible ranging from financial services to telecommunication services. People's roles in enterprises changed from physical work in production to 'desk work' in service.

The information revolution started giving way to the knowledge revolution during the last two decades of the 20th century according to Wiig (1997b:5). This is when influential business pundits started observing that the real basis for competition had started to shift. The basis for competition started shifting towards how well knowledge and other intellectual assets are brought to bear to make an enterprise's customers successful. This is a realisation that has led many organizations to pursue strategies to actively and explicitly manage knowledge.

Many organizations have come to realise that they need to ascertain whether they obtain, renew and use the best possible knowledge in all their areas of work. Organizations have also come to realise that they must continue to embed knowledge in their products, services and internal operations. In addition to controlling costs and creating innovative products and services, organizations have also come to realise that market advantages are now based on how best to serve their individual customers to help them succeed. The knowledge revolution has made it necessary for organizations to work very closely with their customers so as to understand their businesses and their environments.

The role of people has also drastically changed in organizations. Leading organizations have started to see that their employees, instead of being treated as a replaceable commodity, should be treated as a strategic resource. Organizations have started to see that the capabilities, knowledge and skills that organizational members have must be enhanced to help achieve organizational objectives and goals. Organizations are now conducting knowledge audits to discover the knowledge, skills and capabilities held by their members. Knowledge audits help organizations to

identify which employee has what knowledge and how such knowledge may be shared by other members of the organization. Knowledge audits also help organizations to know what kind of knowledge is required, in which point of operation and by whom in the organization. As a result, organizations are encouraging their employees to acquire more relevant knowledge, skills and capabilities by way of training.

Organizations now recognize knowledge as a strategic resource that must be planned for, budgeted for and managed systematically like other organizational resources. Organizations are now hiring top level managers carrying the title of knowledge managers who are responsible for knowledge management activities. Tools have been developed meant to acquire, process, store, distribute and transfer knowledge within and beyond the bounds of organizations. There are no universally accepted methods for measuring the success of knowledge management programmes in organizations, but it has been generally reported that knowledge management contributes towards improved organizational performance.

Kenyan parastatals are basically non-profit organizations. As non-profit making organizations, Kenyan parastatals largely aim at creating social value for the Kenyan tax payers. The parastatals are not expected under whatever circumstances to recognize maximization of profits for stakeholders as their main goal. Non-profit organizations are required to improve continuously in their performance (Lettieri, Borga and Savoldelli (2004:16). The demand for services that are integrated, tailored and timely urges non-profit organizations to follow a new managerial paradigm. It is expected that Kenyan parastals should improve continuously in performance so that they can provide superior goods and services at reasonably affordable prices to the tax paying Kenyans. The social value that Kenyan parastals may create is to provide superior goods and services to the Kenyan tax payers whose taxes support the operations of the parastatals.

Kenyan parastatals provide services in agricultural services, health care services, educational and training services, transportation and telecommunications among a plethora of other services. If the Kenyan government-owned organizations integrate knowledge into the goods and services they provide, it should be expected that their

performance would continue to improve and one would expect that the goods and services they provide would continue to improve in quality and superiority.

There is no doubt that knowledge management is a relatively new managerial paradigm that is being followed by numerous organizations all over the world. In order to follow knowledge management as a new managerial paradigm, Kenyan government-owned organizations should formulate knowledge management strategies. The knowledge management strategies would guide the Kenyan parastals on how to establish organizational knowledge management programmes, establish knowledge-friendly environments and identify areas in which they already have knowledge stocks available within but which are not being used because of lack of clear knowledge management policies. Once knowledge management programmes are established within the Kenyan parastatals, the organizations would be in a position to identify which of their employees possesses what kind of knowledge and how such knowledge may be made explicit and available to other employees for the purpose of sharing. Knowledge management policies would also enable Kenyan organizations to know where and how to find critical knowledge they need for their operations but they do not have.

There is no definite promise that, if the Kenyan parastatals embrace knowledge management, their performance would drastically improve. Not all organizational knowledge management programmes are success stories. However, it would be expected that embracing knowledge management would among other things lead to improving management capability in the Kenyan government-owned organizations, take the organizations to positions of leadership, contribute to strategic thinking and highlight strategic errors. Recognizing strategic errors and adjusting accordingly is a critical part of becoming and remaining successful (Teece, 1998:59). Embracing knowledge management in Kenyan government-owned organizations would also result in achieving and maintaining competitive advantage, enhancing organizational capability and helping to interpret external knowledge management success stories. It would also be expected that by embracing knowledge management, the Kenyan parastatals would create great social value for the people of Kenya. Embracing knowledge management would also lead to knowledge sharing becoming the norm and not the exception in Kenyan parastatals. Knowledge sharing in the Kenyan

parastatals may not be very easy, but on the other hand it can often be the basis for competitive advantage (Teece, 1998:60).

2.5 Knowledge, epistemology and ontology

According to Nonaka and Konno (1998:42) knowledge is created through the combinations of tacit and explicit knowledge. These may serve to make up the 'epistemological' dimension to organizational knowledge creation that is through the continual dialog between the tacit and the explicit, according to Lessem (1998:322). The extent of social interaction between individuals that share and develop knowledge may form the 'ontological' dimension of corporate knowledge management.

2.5.1 The epistemological dimension: tacit and explicit knowledge

Nonaka and Konno (1998:42) contend that explicit knowledge can be expressed in words and numbers and shared in the form of data, scientific formulae, specifications, manuals, and the like. This kind of knowledge is only a very small portion of the entire body of possible knowledge. There is also tacit knowledge which Nonaka and Konno see as very personal and embedded in people. The tacit knowledge elements center upon mental maps in which human beings form working models of the world by creating and manipulating analogies in their minds (Lessem, 1998:323). These working models, according to Lessem, include metaphors, paradigms, beliefs and viewpoints that provide perspectives that help individuals to perceive and define their world. From the organizational perspective, Lessem argues that explicit knowledge in organizations include codified systems of rules and regulations, policies and procedures, trading accounts and software programmes. Tacit knowledge for this matter according to Lessem, is a continuous activity of knowing and embodies an 'analogue' quality that aims to share tacit knowledge to build mutual understanding. Explicit knowledge is discrete and digital as it is captured in records of the past as libraries, archives, and databases, and can be accessed on a sequential basis.

2.5.2 The ontological dimension

Lessem (1998:323) states that knowledge creation should be understood in terms of a process that organizationally amplifies the knowledge created by its people, and crystallizes it as part of the knowledge network of the organization. In this context, Lessem contends that, it is possible to distinguish between several levels of social interaction at which the knowledge created by an individual is transformed and legitimized. An informal community of social interaction provides an immediate forum for nurturing the emergent property of knowledge at each level. What Lessem calls the informal community might span organizational boundaries and it is important that the organization is able to integrate aspects of emerging knowledge into strategic development. As a result, Lessem says that the potential contribution of informal groups to the organizational knowledge creation should be related to more formal notions of organization structure. This should arise within the organization and without. For this to happen, certain enabling conditions are necessary - that is the 'developmental' part of the knowledge core.

2.6 Knowledge creation – enabling conditions

According to Nonaka and Takeuchi (1995:74) there are five enabling conditions for organizational knowledge creation: intention, autonomy, fluctuation, redundancy and variety. Intention is concerned with how individuals form their approach to the world. From a peripheral perspective as it may appear, information processing models treat the mind as a fixed-capacity device for converting meaningless information into conscious perception, from a core perspective cognition is the activity of knowing and understanding as it occurs in the context of purposive activity, which Lessem (1998:323) calls Aristotle's level four. Aristotle gives four levels of human knowledge. The first level starts from sense-perception. Out of sense-perception comes memory, which Aristotle considers level two of knowledge. A number of memories constitute experience, which Aristotle considers to be knowledge level three. Experience results in skill, which Aristotle considers to be knowledge level four. Skill, or the fourth level of knowledge according to Aristotle, may be equated to "automatic knowledge." This is knowledge that a person is so familiar with that he/she has automated and is able to use it without thinking much about it. An

organizational knowledge management programme should enable employees of an organization to develop skills which they need for their daily tasks.

Viewed from the organizational knowledge view point, the essence of strategy lies in intentionally developing a corporate capability to acquire, create, accumulate and exploit knowledge. An organization then should conceive a vision that encompasses the kind of knowledge and culture that should be developed and its implementation through the management system. Conditions favouring group or individual autonomy should be established to realize such implementation (Lessem, 1998:323). Individuals and informal groups within organizations should be allowed autonomy to create and share knowledge.

Lessem looks at individuals within organizations as the prime movers of organizational knowledge creation. Individuals who are in touch with their own centre, that is the core of being, are continuously committed to recreating the world in accordance with their own perspectives. As such, they are fully autonomous, albeit as a conscious part of a larger whole. The principle of autonomy may be applied at the level of the individual, group or organization, separately or together. Such autonomy, according to Lessem, increases the possibility that individuals or groups will motivate themselves to create new knowledge. Lessem's contention may suggest that there may be tension between individuality and corporate. However, it should be understood that it is individual employees who create and possess knowledge as opposed to the organization. The organization can only create a conducive environment for individual employees to create and share knowledge to the advantage of the organization.

Regarding fluctuation, Nonaka and Takeuchi (1995:78) argue that knowledge creation involves continuous interaction with the environment. In this context, chaos or discontinuity can generate new patterns of interaction between, within and without. As a direct result, individuals or groups have to re-create their own system of knowledge if they are to take account of fluctuation. Specifically, when breakdowns occur, you may be led to question the value of longstanding habits and routine tools. This may lead members to defining problems and resolving crisis situations.

Redundancy of information is especially important at the concept-development stage, when it is critical to articulate images rooted in tacit knowledge (Lessem, 1998:325). At this stage, "redundant" information enables individuals to invade each other's functional boundaries and offer advice or provide new information from different perspectives. It brings about "learning by intrusion" into each individual's sphere of perception. This in organizational terms means the conscious overlapping of company information, business activities and management responsibilities. Given that members share overlapping information, they can sense what others are trying to articulate. For that reason, redundancy may be seen as a way of creating knowledge within an organization.

Requisite variety is the fifth condition of creating organizational knowledge according to Nonaka and Takeuchi (1995:82). According to the principle of requisite variety, an organization can maximize efficiency by creating within itself the same degree of diversity as the diversity it must process. To maximize such variety, everyone in the organization should be assured of the fastest access to the broadest variety of necessary information. Such variety is also enhanced by multi-functional, cross-cultural, or inter-organizational activities. All these enabling conditions provide the support for the process of organizational knowledge creating.

The ontological dimension serves to show that in organizations, knowledge flows. The existence of knowledge in organizations does not just happen. Individuals, groups or even departments must create knowledge. Some basic conditions have to be in place for knowledge creation in organizations. Knowledge management therefore should address itself to how individuals and groups should be encouraged to create and share knowledge and how to create enabling conditions for organizational knowledge creation. This study will try to find out if such knowledge-creating conditions are realized by top management in Kenyan government-owned organizations and/or how they can be established to enable knowledge generation and sharing.

2.7 Other theories of Knowledge Management

This researcher observes that knowledge management is a young discipline which has not as yet come up with theories that clearly distinguish it as an academic discipline. If anything, the theories which researchers have used to investigate problems of knowledge management are borrowed from other academic disciplines such as organizational behaviour, management, economics, sociology, management information systems, communication, information resources management, human resource management and other disciplines. It may be worth noting that this is entirely typical of a new discipline as it emerges – the main theories are normally borrowed from cognate disciplines and an independent body of knowledge only begins to appear as research and experience indicate that the "borrowings" do not adequately describe the field.

As a discipline, knowledge management may be growing in importance, but it has not been practiced for a long time (Owen, 1999:8). Owen goes on to say that economists, human resources management professionals, information technology specialists and librarians, all claim knowledge management for themselves and claim to offer the best strategies for managing corporate knowledge. Grossman (2006:242) concurs with Owen by stating that knowledge management is still an emerging discipline which lacks a solid theoretical foundation. Grossman thinks that much work still needs to be done in the field of knowledge management in order to formalize the frameworks, taxonomies, and procedures that are necessary to serve practitioners and which are critical to solidify its position as a valuable discipline.

2.7.1 Theory of organizational knowledge creation

Nonaka (1994:15-17) attempts to come up with a theory of organizational knowledge management, which he calls a "dynamic theory of organizational knowledge creation." Nonaka states that an essential aspect of managing knowledge is the interaction process. According to Nonaka, the four modes of interaction are socialization, combination, externalization and internalization. In socialization, Nonaka avers that one individual shares knowledge with another. In combination, he says that one piece of explicit knowledge is combined with another. Nonaka explains

externalization as the process in which knowledge is made explicit; while internalization is the process of converting explicit knowledge into tacit knowledge.

Nonaka's theory is not only about how to create organizational knowledge, but also about how to share organizational knowledge, how to convert knowledge from one type to another and generally how to manage organizational knowledge. Both Nonaka's and Burton-Jones' theories seem to be grounded in management. This researcher proposes that an investigation into an aspect of knowledge management should be approached as an investigation into any organizational management problem.

In trying to come up with a theoretical framework for knowledge management, De Hoog *et al.*(1999:10-1), like Owen (1999:8) aver that many people from very diverse backgrounds will join the bandwagon, all claiming to do knowledge management, thus watering down what would be a theory of knowledge management. In the event, knowledge management may become everything that goes on in an organization, which to De Hoog *et al.* is a clear danger. They think that knowledge management should avoid the trap of trying to manage all knowledge, save its own. De Hoog *et al.* do not clearly distinguish the knowledge that knowledge management may call its own and should therefore manage.

According to De Hoog *et al.* (1999:10-2), a cursory glance at the current state of the art shows that three main approaches are followed to put more flesh on the knowledge management concept:

- Top-down approaches: developing general theoretical frameworks of varying complexity.
- Bottom-up approaches: case studies in specific business environments
- Tool-centered approaches: application of a particular tool (e.g., Lotus Notes).

All the three approaches according to De Hoog *et al.* suffer from some major shortcomings: Top-down lacks empirical evidence for proposed theories, bottom-up approaches are localized and difficult to generalize, while tool-centered approaches are too strongly linked to one particular solution.

In order to make knowledge management more than just another management and/or IT fad, it should be developed into a discipline with its own methodology (a way of working), De Hoog *et al.* add. They recommend that a methodology can be developed by combining the three approaches they have proposed.

Developing this point, de Hoog *et al.* contend that the problem is the empirical confirmation of ideas, theories and tools. They say that it seems evident that conventional "scientific" experimentation is out of question, because it will be almost impossible to find cases that are realistic in their complexity and still fit into the experimental paradigm of controlled conditions and naive subjects. It is also worth noting that de Hoog *et a*l. seem to suggest that a theory base ought to be imposed – experience suggests that a more probing approach is to allow the need for theory to emerge out of practice.

2.7.2 Social theory

Lehaney *et al.* (2004:96) contend that critical social theory has been applied extensively in information management and possibly offers a way forward for knowledge management. They use the work of Burrel and Morgan (1979) to provide a framework for understanding the development of knowledge management. Burrel and Morgan writing in 1979 as cited by Lehaney *et al.* (2004:97), positioned all social theories into one of four paradigms: functionalist, interpretivist, radical humanist and radical structuralist – according to the extent to which the social theories were subjective versus objective or regulative versus radical.

The subjective-objective dimensions may be seen in terms of four elements: ontology, an epistemology, a view of the nature of human beings, and methodology. The ontological debate concerns the nature of reality, the two opposing extremes of thought being: realism – that reality is external to the individual and is of the objective nature; and nominalism – that reality is a product of individual consciousness. Epistemology is concerned with the grounds of knowledge, or how the world might be understood, and this understanding is communicated as knowledge.

The two opposing extremes are: positivism – that knowledge is hard, real, and capable of being transmitted in a tangible form, and antipostivism – which holds that knowledge, is soft, more subjective, based on experience and insight, and essentially of a personal nature. Human beings may be viewed on a scale from deterministic – determined by situations in the external world and conditioned by external circumstances – to voluntaristic – they have free will and they create their environment. Lehaney *et al.* (2004:100) further argue that the relevance of critical social theory to knowledge management revolves around the fact that knowledge management is a human-centered domain as opposed to a technological-centered domain.

2.7.3 Social systems theory: its application to knowledge management

In the study of social systems, where the key to the functioning of the system is human activity, functionalist views are questioned (Lehaney *et al.* 2004:101). Experimentation may not help much in such systems. The utility of problem solving, functionalist techniques is diminished when dealing with ill-defined, highly complex human activity. Because of the little value of experimentation, 'softer' methods of approaching human-related issues are considered to be of great value.

2.7.4 Critical social theory – the theoretical underpinning

Lehaney *et al.* (2004:103) trace critical social theory to the works of Kant, Marx and the Frankfurt School of thought. They aver that the two most widely accepted modern theorists are Foucault and Herbamas. It is to Herbamas that management science turned to in the 1980s in order to develop a more human-centred view of management science. Lehaney *et a*l. infer that the critical social theory may be applied in knowledge management as researchers have chosen to position the domain in the social (and thus "soft") soft sciences rather than the natural ("hard") sciences principles.

The Frankfurt School of philosophy is not a place as such, but a school of thought, a group of similar theories that focus on the same philosophical topics. The notable scholars who made up the Frankfurt School were all directly or indirectly associated

with a place called the Institute of Social Research. The nickname of the thinkers originates in the location of the institute, Frankfurt, Germany. The notable scholars who made significant contributions to this school of thought were Theodor W. Adorno (philosopher, sociologist and musicologist), Walter Benjamin (essayist and literary critic), Herbert Marcuse (Philosopher), and Jurgen Habermas (philosopher). Each of these philosophers believed in and shared Karl Marx's Historical Materialism.

According to Kezar (2004:43), the philosophers of the Frankfurt School of thought concerned themselves with and broadly discussed topics on:

- the nature of existence and humankind (ontology);
- how human beings know and what constitutes knowledge (epistemology); and
- the best means of gaining knowledge (methodology)

2.8 Definitions of Concepts

This sub-section gives definitions of what the researcher considered to be major concepts in the study. Less significant concepts will be defined as encountered in the course of the thesis.

2.8.1 Competitive Advantage

The ability of an organization to acquire and retain superior economic performance in an industry over a period of time (Wiggins and Ruefli, 2002:82).

2.8.2 Corporate Culture

Widely shared beliefs, norms and values about appropriate ways of behaving and conducting work within an organization (Van Buren, 199:77).

2.8.3 Corporate Knowledge

The knowledge that corporations hold and can be exploited as part of product or service offering. Such knowledge includes applications knowledge, market knowledge, and knowledge on how to solve problems encountered by users (Skyrme, 1999:53).

2.8.4 E-learning

E-learning means using the Internet to enable training, learning, and knowledge transfer. E-learning includes distance learning, computer-based training, on-demand learning, and Web-based training (Pearlson and Saunders, 2004:328).

2.8.5 Explicit Knowledge

This is knowledge that can be expressed in words and numbers and can be easily communicated and shared in the form of hard data scientific formulae, codified procedures or universal principles (Nonaka and Konno, 1998:42).

2.8.6 Groupware

Software that supports the ability of two or more people to communicate and collaborate. Groupware includes e-mail, electronic meeting systems, desktop video conferencing as well as systems for workflow and business process reengineering (Coleman, 1999:12-2).

2.8.7 Information and Communication Technologies (ICTs)

A variety of devices, technologies and services built on scientific breakthroughs in computers, software design, photo-optics, circuit switching, and satellites among others. The most ubiquitous representation of the ICT revolution is the Internet, which integrates telecommunications and computing (Fieldman, 2002:48).

2.8.8 Information Management

The process of determining the information objects and associated semantics required for systems and processes to perform their functions and to interoperate. That is, what information must be obtained or received to support the decisions being made or the actions being taken. Information management processes and services may act to create new information objects through the aggregation, fusion, transformation and filtering of existing information (Miller *et al.*, 2001:365).

2.8.9 Information Resources

The available data, technology, people and processes within an organization to be used by the manager to perform business processes and tasks (Pearlson and Saunders, 2004:329).

2.8.10 Intellectual Capital

The knowledge that has been identified, captured, and leveraged to produce higher-value goods or services or some other competitive advantage for the firm (Pearlson and Saunders, 2004:330).

2.8.11 Internet

The system of computers and networks that, together, connect individuals and businesses worldwide. The internet is a global, interconnected network of millions of individual host computers (Pearlson and Saunders, 2004:330).

2.8.12 Knowledge

Information with meaning (Skyrme, 1999:47). It is the potential to take effective action. In an organization, knowledge needs to be assimilated so that the individuals in the organization can take effective action. Not until information is assimilated and put into action is it really knowledge (MacSweeney, 2003:41).

2.8.13 Knowledge bases

Digital databases that attempt to capture almost every imaginable explicit intellectual asset that an organization possesses (Groff and Jones, 2003:4).

2.8.14 Knowledge Management

It is a collaborative approach to identifying, capturing,, evaluating, and sharing knowledge, most importantly, the uncaptured tacit knowledge. This is personal knowledge possessed by individual persons. It is not easy to share or even codify this

kind of knowledge. It is the opposite of explicit knowledge resident in the expertise and experience of individuals and processes. Knowledge management seeks to promote the re-use and re-purposing of an enterprise's knowledge. Knowledge management also seeks to provide a shared awareness of the state of the enterprise's environment (Miller *et al.*, 2001:367).

2.8.15 Knowledge management systems

A class of information systems applied to managing organizational knowledge. They are IT-based systems developed to support and enhance the organizational processes of knowledge creation, storage/retrieval, transfer and application (Alavi and Leidner, 2001:114).

2.8.16 Knowledge Repository

A Physical or virtual place where documents with knowledge embedded in them, such as memos, reports, or news articles, are stored so they can be retrieved easily (Pearlson and Saunders, 2004:330).

2.8.17 Learning organization

An organization that is committed to learning, both for personal development and the organization as a whole. In such an organization, learning is recognized and rewarded. Time devoted to thinking and learning is not viewed as wasted time. Organizational learning involves learning from both successes and failures (Skyrme, 1999:202).

2.8.18 Librarian

One who has care of a library and its contents; the work includes selection of stock, its arrangement and exploitation in the widest sense, and the provision of a range of services in the best interest of all groups of users. Coordination of activities, setting of priorities, evaluation and other managerial tasks are an essential part of the work. Involvement in the community served, whether public, academic, private or any other context is also of great importance (Prytherch, 2000:438).

2.8.19 Management

The functions associated with ensuring that the activities of an organization are performed as planned (Van Buren, 1999:76).

2.8.20 Organization

A system of interrelated behaviours of people who are performing a task that has been differentiated into several distinct subsystems, each subsystem performing a portion of the task, and the efforts of each being integrated to achieve effective performance of the system (Lawrence and Lorsch, 1967:3).

2.8.20 Organizational knowledge

How organizations know about themselves, how they make sense of performance, and what they do on the basis of that understanding (Patriotta, 2003:199).

2.8.21 Tacit Knowledge

That knowledge which is highly personal and hard to formalize, making it difficult to communicate or share with others. It is deeply rooted in an individual's actions and experience as well as in the ideals, models, values or emotions he or she embraces (Nonaka and Konno, 1998:42).

2.9 Summary

This chapter has discussed the Resource-based Theory of the firm and other related theories that the researcher considered relevant to organizational knowledge management. The other theories discussed include social systems theory, social theory, organizational knowledge creation theory and critical social theory. The chapter also discusses the historical phases of the knowledge society as a basis for knowledge management and the history of knowledge management. Epistemological and ontological dimensions of knowledge management are also discussed. The Resource-based Theory of the Firm is not strictly a knowledge management theory, but it has relevant knowledge management principles which form a framework for

and/or a backdrop for this research. The theory recognizes knowledge as a key productive resource of the firm. The chapter also defines concepts that the researcher considered important and frequently used in the study. The next chapter is a literature review of issues in knowledge management.

CHAPTER THREE
ISSUES IN KNOWLEDGE MANAGEMENT

3.1 Introduction

This chapter reviews the preliminary documented literature on which the theoretical framework of this study was based. This literature review on knowledge management is based on:

- main questions and problems addressed to date about knowledge management;
- major issues and debates about knowledge-based assets management;
- practices, procedures and tools of knowledge management;
- information and communication technologies;
- organizational learning; and
- challenges of organizational knowledge management.

3.2 Knowledge Management

The concept that knowledge can be managed just like any corporate resource and that it has an economic value is a recent one. Knowledge management has been defined variously and by professionals of varying academic backgrounds. Economists, sociologists, philosophers, psychologists, specialists in human resource management and information scientists have all tried to define knowledge management and claim it as their academic discipline. From an organizational point of view, Alavi and Leidner (1999:6) define knowledge management as a systematic and organizationally specified process for acquiring, organizing and communicating both tacit and explicit knowledge of employees so that other employees may make use of it to be more effective and productive in their work. Knowledge management seeks to promote re-use, sharing and re-purposing of an organization's knowledge. Knowledge management also seeks to provide a shared awareness of the state of an organization's environment.

In its broadest sense, Wiig (1993:18) defines knowledge management as a conceptual framework that encompasses all activities and perspectives required to gain an

overview of, deal with, and benefit from the corporation's knowledge assets and their conditions. Knowledge management pinpoints and prioritizes those knowledge areas that require management attention. Wiig further says that knowledge management identifies the salient alternatives and suggests methods for managing them, and conducts activities required to achieve desired results.

Teo (2005:148) defines knowledge management as the process of making creative, effective, and efficient use of all the knowledge and information available to an organization for the benefit of its customers and thus the organization as a whole. Teo goes further to give reasons as to why knowledge management is important. The reasons he gives are:

- Organizations have come to recognize that acquisition of and speedy distribution of information, coupled with business experiences, form the basis of knowledge capital assets with which to build great business;
- Marketplaces are increasingly competitive and the rate of innovation is increasing, hence, knowledge must evolve and be assimilated at an ever faster rate;
- Early retirements and increasing mobility of workforce lead to loss of organizational knowledge;

There is need to manage increasing complexity due to increased globalization and technological change. Knowledge management helps firms deal with increased complexity and represents a key opportunity to leverage knowledge assets for achieving substantial savings, significant improvements in human performance, and competitive advantage.

Skyrme (1999:59) gives a practice-based definition of knowledge management as "the explicit and systematic management of vital knowledge and its associated process of creating, gathering, organizing, diffusion, use and exploitation, in pursuit of organizational objectives." The main difference between knowledge and other types of resources is that knowledge is not tangible. So the issue of managing it like say human resources or like financial resources arises. One may not place his or her hands

on knowledge, yet it should supposedly be managed as other resources that one can put his or her hands on. Knowledge may also be differentiated from other resources in that it is not "used up." When something is done on the basis of knowledge, additional insight and knowledge may be gained, thus adding to the knowledge base – so the base is enriched but the original knowledge remains as it was. This is unlike other resources which are used once and that is all. David and Foray (2002:13) urge that a distinction should be made between knowledge and information. On their part, knowledge in whatever field empowers its possessors with the capacity for intellectual or manual action. Information, on the other hand, takes the shape of structured and formatted data - sets that remain passive and inert until used by those with the knowledge needed to interpret and process them.

Recognizing the import of knowledge to strategic success, a growing number of managers are seeing knowledge as an important resource to manage, just as they manage cash flow, employees, raw materials, and other resources (Daft, 2000:686). Daft argues that managers are seeking ways in which their organizations can use knowledge strategically. The efforts to gather knowledge and make it widely available and foster a culture of learning, Daft says, are called knowledge management. Government-owned organizations in Kenya need to foster a culture of learning by establishing knowledge management initiatives. A culture of learning can be relied on to enable employees to acquire new useful skills and capabilities.

3.2.1 Knowledge Management versus Information Management

There has been debate regarding the difference between knowledge management and information management. The debate has been revolving around the question of whether knowledge management and information management should be regarded as one and the same thing. Gold, Malhotra and Segars (2001:186) are of the opinion that many organizations are launching extensive knowledge management effort so as to achieve competitive sustainability. The trio however say it is unfortunate that many knowledge management projects are, in reality information management projects. They further argue that when such projects yield some consolidation of data but little innovation in products and services, the concept of knowledge management is cast in doubt. The quest to move beyond information management and into the realm of

knowledge management is a complex undertaking involving the development of structures that allow an organization to recognize, create, transform and distribute knowledge.

According to Bouthillier and Shearer (2002:1), a distinction between knowledge management and information management is far from being well-articulated in the knowledge management literature. This, they say is compounded by the confusion of the concept of knowledge and information. Writing in 1997, Koening, as cited by Buouthillier and Shearer (2002:1), contends that there is no consensus regarding the claim that knowledge management is a new field with its own research base, given that much of the terminology and techniques used such as "knowledge mapping" seem to have been borrowed from information management and librarianship. Within the field of knowledge management, knowledge is often regarded as an information handling problem (Martensson, 2000:209). Martensson looks at knowledge management as the process of collecting information, storing information, making information available and using the information.

Differentiating between data, information and knowledge has not been easy. Bhatt (2001:69) concedes that defining data, information and knowledge is difficult. He argues that only through external or from a user's perspectives can one distinguish data, information and knowledge. Bhatt however tries to distinguish data, information and knowledge. He says that data are considered as raw facts, information is regarded as an organized set of data and that knowledge is perceived as meaningful information. In essence, information that does not make meaning cannot be knowledge and data that are not organized cannot make information.

Knowledge management is not seen as having brought about any difference or advancement more than librarianship or information resources management may have had. Terms such as "knowledge economy", "knowledge workers" and "knowledge management" have been in circulation for a considerable time, but there still appears to be no real consensus of opinion about how, and to what extent knowledge management differs from and/or represents an advance or improvement on established librarianship or, more specifically, information management or information resources management theory (Laughridge, 1999:245). Streatfield and Wilson (1999:70) cast

doubt on the practicability of managing knowledge outside information management. They argue that it is only practical to talk about information management rather than knowledge management. They put it thus:

> *We cannot manage knowledge directly – we can only manage information about the knowledge possessed by people in organizations. Even then, the information to be managed is necessarily incomplete because the boundaries of personal knowledge are fuzzy and continually changing as individuals get out of touch or extend their knowledge (Streatfield and Wilson, 1999:70).*

On her side, Broadbent (1998:26) argues that the foundations of knowledge management are the use and exploitation of an organization's information through the application of organizational members' skills, talents, thoughts, ideas, intuitions, commitments, motivations, and imaginations. Broadbent contends that knowledge management is not just about managing or circulating printed materials or Internet searching on behalf of the clients. These are activities which form only part of knowledge management processes. Broadbent (1998:24-25) further argues that knowledge management goes beyond data capture and manipulation in order to obtain information. Rather, knowledge management has something to do with the use of:

> *Professional intellect in activities which use individual and external knowledge to produce outputs characterised by information content – the acquisition, creating, packaging or application and reuse of knowledge (1998:24-25).*

Broadbent (1998:32) attempts to make a distinction between a "knowledge worker" and an "administrative worker." She argues that librarians who are intellectually involved in the activities of acquisition, creating, packaging or application and re-use of knowledge can be seen as "knowledge workers." On the other hand, the people involved in organizing things for others to access come close to being an "administrative worker" rather than a "knowledge worker."

Streatfield and Wilson (1999:69) look at knowledge management as part of the larger information management profession. They say thus:

> *Key staff of an organization should be treated as information managers, even if one of them assumes overall responsibility for the strategy. This does not disqualify the information professional from taking a key role in the organizational attempt at developing knowledge awareness strategies; nor does it assume any predefined role as proper for the information professional (Streatfield and Wilson, 1999:69).*

Apparently, Streatfield and Wilson are not convinced that in the near or distant future, there will be no significant change in the role of information professionals in all organizations involved in acquiring, organizing information, making it available for use, distributing it and disposing of information resources in all media. The only difference they foresee perhaps might be that information professionals will be required to adopt a more systematic approach to tracking existing organizational information strengths and developing new information resources relating to the available in-house expertise.

From the arguments above, one may say that there exists a tiny line between the activities of knowledge and information management. The skills required to succeed both in knowledge and information resources management are very much similar. The activities of knowledge and information management are equally very similar. However, some writers try to draw a line between knowledge management and information management. Knowledge management goes beyond just acquiring, processing, storing and making knowledge available for use. There are the issues of tacit knowledge, organizational learning and human capital management, all of which may not qualify as basic concerns of information resources management.

3.3 Intellectual Capital and the Issue of Knowledge workers

Intellectual capital consists of three elements: human capital, organizational capital and customer capital (Barnes, 2002:226). Barnes goes on to explain that human capital is the knowledge that each individual has and generates. Organizational capital is the knowledge that has been captured and institutionalized as the structure, processes and culture of an organization. Customer capital is the perception of value obtained by a customer from doing business with a supplier of goods and/or services. According to Chowdhury (2000:238), the intellectual capital and knowledge that employees possess will become increasingly the critical assets for the firm. Knowledge, Chowdhury argues, is more than power as it represents the underlying values and soul of an organization. To him, firms that access, leverage, and create knowledge will win while those which don't will play a never-ending game of catch-up. Because of the value of knowledge to organizations, Chowdhury recommends that organizations must learn to access knowledge and ideas at all times. They must

become learning organizations which generate and generalize ideas with impact. They must become thought leaders within the industry so that they set the rules of the game rather than be constrained by being strategic followers.

Sena and Shani (1999:8-1) on the other hand argue that the scarcest commodity in business today is not customers or technology or capital. It is people. They say that more and more companies simply cannot recruit skilled people fast enough. Solving the problem of the shortage of talent is the firms' biggest strategic priority. Besides the difficulty in selecting the right people, an even greater challenge is to make these people productive contributors. The people that firms cannot easily find to recruit are knowledge workers. Such workers are expected to be armed with productive skills, knowledge and capabilities. It looks like formal education is not enough to make one a knowledge worker and a productive worker at that. Organizations should be prepared to train, educate and mould their people to be productive. The essence of knowledge management is to enable an organization to achieve maximum effectiveness. This can only be achieved through skilled employees. In essence, organizations must strive to retain such employees because when a skilled employee or professional leaves an organization, this results in loss of human and knowledge capital.

One may not easily separate intellectual capital from the knowledge worker. Peter Drucker (1995:226-227) says he first introduced the concept of the knowledge worker in 1959. He contends that he then predicted that the knowledge worker would replace the blue-collar worker. According to Drucker, the new jobs for the knowledge worker require, in the great majority, qualifications the blue-collar worker does not possess and is poorly equipped to acquire. The new jobs require a good deal of formal education, and the ability to acquire and to apply theoretical as well as analytical knowledge. The new jobs require a different approach to work and a different mind set. Above all else, the new jobs require a habit of continuous learning. Drucker continues to argue that access to knowledge work requires formal education, or at least formal training. Knowledge and most service works, in their work characteristics, are non-traditional. Workers do not always have to be physically present in their organizations, nor do they have to be full time employees.

There is usually a wrong perception that Information technology (IT) specialists are the only knowledge workers, which perception Currie (1995:286) does not quite agree with. Knowledge workers are expected to enable an organization to gain competitive advantage but hardware alone is not sufficient to enable an organization to achieve this goal. Currie further argues that I.T. skills should be combined with business awareness to gain competitive advantage. Currie's argument seems to support Drucker's contention that knowledge workers will need formal education or at least formal training but he does not specify education or training in particular areas. Anybody who provides a service or who works as a service worker may qualify to be a knowledge worker according to Drucker and Currie. Drucker emphasizes formal education as the criterion for becoming a knowledge worker.

Many events have unfolded to substantiate the views expressed by both Drucker and Currie in 1995. Cavaleri, Seivert and Lee (2005:5) for example contend that organizations are now increasingly seeing employees as knowledge workers and problem solvers. In organizations where problem solving is considered to the most valuable kind of work, knowledge is regarded very highly. Cavaleri, Seivert and Lee further argue that many organizational leaders are now keen on providing employees with easy access to as many kinds of knowledge as possible. To make sure that there is easy access to knowledge and information, many organizations are now acquiring technologies that will assist employees of all sorts in gaining access to knowledge as well as sharing it.

3.4 Competitive advantage

Knowledge has come to be associated with gaining and maintaining competitive advantage. With globalization of the world economies, Kenyan organizations need to acquire and maintain competitive advantage locally, in the region and globally. Knowledge may not be the sole resource to assure an organization of acquiring and maintaining a competitive advantage, but it seems like it will play a crucial role. Wiggins and Ruefli (2002:82) define competitive advantage as the ability of an organization to acquire and retain superior economic performance in an industry over a period of time. Nonaka (1991: 96) seems very convinced that knowledge is the only

promising and lasting source of competitive advantage, hence, acquisition of knowledge should be a priority in knowledge-creating organizations. He states thus:

> *In an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge. When markets shift, technologies proliferate, competitors multiply, and products become obsolete almost overnight, successful companies are those that consistently create new knowledge, disseminate it widely throughout the organization, and quickly embody it in new technologies and products. These activities define the 'knowledge-creating' company, whose sole business is continuous innovation (Nonaka, 1991:96).*

3.4.1 Use of Knowledge in Innovation Processes

In a competitive business environment, organizations would want to innovate as many new products and services as possible. Innovation is the successful exploitation of new ideas which can be products or processes (Paukert, Niederee and Hemmje, 2004). The trio point out that innovation should be understood as dealing with complex problem-solving processes in whose activities of knowledge of different types is applied and created. Paukert, Niederee and Hemmje further argue that systematic support of innovation processes requires efficient management of knowledge with respect to activities like acquisition, creation, enhancement, retrieval, reuse and combination of different types of knowledge. Alavi and Leidner (1999) argue that knowledge can be more useful and can be used for innovation if it does not reside in the minds of individuals, but is applied and widely made available to all organizational members. Fuller (2002a:26) thinks that tacit knowledge can be more useful than explicit knowledge in innovation processes. He argues that explicit knowledge is more of a public good available to everybody.

Innovation of new products and services goes hand-in-hand with knowledge. According to Wiig (1993:322), employees of an organization are in a position to innovate in ways that serve the organization well when they are given a broad understanding of their work environment in terms of its nature, how it relates to upstream and downstream activities, as well as the overall goals of the organization. An organization interested in grassroots innovation must therefore ensure that its knowledge workers are allowed and encouraged to develop broad knowledge and understanding of the organization's direction.

3.4.2 Collaboration and Knowledge Exchange

In the available literature, the issues of collaboration and knowledge exchange between organizations are depicted as being of great concern to knowledge managers, economists and human resource management specialists. According to Mowery, Oxley, and Silverman (1996:78), interorganizational transfers of knowledge occur by collaboration. The trio suggest that interorganizational collaboration can provide a means by which firm-specific knowledge can be exchanged between organizations. From the firm-specific knowledge point of view, Mowery, Oxley and Silverman argue that firms use inter-firm collaboration to gain access to other firms' capabilities, supporting more focused, intensive exploitation of existing capabilities within each firm.

Organizations, regardless of their nature, are compelled to implement knowledge management programmes to enable the creation of platforms, processes and standards for collaboration and knowledge sharing across geographical and organizational boundaries (Du Plessis and Boon, 2004: 79). Collaboration can also take place within large organizations. There can be departmental or divisional collaboration within such organizations.

Teece and Pisano (1994:545) look at the concept of dynamic capabilities as a coordinate management that may open the door to the potential for interorganizational learning. Teece and Pisano say that researchers have pointed out that collaborations and partnerships can be vehicles for new organizational learning, helping firms to recognize dysfunctional routines, and preventing strategic blind spots. Hamel (1991:86) observes that joint ventures can be a good means of transferring knowledge between different firms operating even in different countries.

Allee (1997:179) points out that creating and renewing knowledge emerges from the collaborative intelligence of an organization in response to the environment. Allee argues that fostering openness in the internal environment through self-questioning and appreciation of data and feedback are critical for generating and renewing of knowledge. Equally important is openness to the external environment in the way people embrace information and new knowledge. According to Allee, organizations

that appreciate embracing information and new knowledge deploy "scouts" to conferences, trade shows, universities, research consortiums, and even to foreign countries and other industries. Such organizations engage in world-class benchmarking projects to bring in new ideas and ways of thinking. Such organizations use outside trainers, consultants, and educators to spark reflection and inquiry.

3.5 Assessment, Valuation and measurement of knowledge-based assets

How to assess and measure the value of knowledge-based assets are issues debated in the available literature on knowledge management and it does not seem like methods and standards of assessing, measuring and valuing the knowledge-based assets have been agreed on. Measuring and valuing of knowledge-based assets and knowledge management successes or failures are still challenges that organizational knowledge managers have to contend with. It has generally not been easy to assess, measure and value knowledge-based assets. One unique characteristic of the knowledge-based assets is that they are governed by increasing returns, as opposed to the decreasing returns which are known to characterize the traditional resources of land, labour and capital (Arthur, 1996:103).

Many organizations have no or little understanding of the value they derive from the investments they make in knowledge management (Ahmed, Lim and Zairi, 1999:306). The reason for failing to derive any value from knowledge management investment is because many organizations fail to put in place tracking systems to measure progress in knowledge management, hence enforcing the case for measurement. According to Ahmed, Lim and Zairi, the importance of measuring knowledge-based assets derives from:

- one cannot manage what one cannot measure;
- it is important for organizations to determine what to pay attention to and improve;
- to provide a scorecard for people to monitor their own performance levels;
- to give an indication of the cost of poor implementation;
- to give a standard for making comparisons; and
- to help efforts comply with organizational objectives.

Managers need to understand how to evaluate intangible assets or knowledge-based assets so that they are in a position of communicating value to stakeholders (Edvinsson, 2000:12; Rodgers, 2003:181). Knowledge-based assets may be looked at as strategic resources, but the traditional accounting systems may still be having problems in determining the exact book value of such assets. Writing in 2001, Blair and Wallman as cited by Rodgers (2003:181), suggest that knowledge-based assets may be defined as non-physical features that contribute to, or are used in producing products, or rendering services that are expected to generate future productive benefits for individuals or companies that control the use of those features.

Rodgers (2003:182) has characterized knowledge-based assets into three categories:

(1) *Human:* Attitudes, perceptions, and abilities of employees; and their motivation, commitment and adaptability to the organization. This is the knowledge that each individual has and is capable of generating. Human capital is essential in that it is the source of innovation and renewal, whether from brainstorming activities or a list of quality suppliers. Areas that are key to managing human capital include:

- Building an inventory of employee competencies;
- Developing a system to transfer the needed knowledge, skill, or intellectual addition when required; and
- Acquiring an evaluation and reward system anchored to the acquisition and application of competency that aligns with the organization's objectives.

(2) *Organizational:* Intellectual properties such as brands, copyrights, patents, and trademarks; and infrastructures including culture, and process capability. Organizational (structural) capital also includes knowledge that has been captured/institutionalized within the structure, processes, and culture of an organization. Sharing and transporting knowledge needs structural intellectual assets such as distribution channels, communication systems, laboratories, competitive and market channels, which turn individual know-how into the property of the organization.

(3) *Relational:* Knowledge of and acquaintance with communities, competitors, customers, governments, and suppliers in which the organization operates. It also provides the perception of value obtained by a customer from conducting business with a supplier of goods and/or services. Reputation capital can be considered as part of relational knowledge-based assets. Reputation capital is dependent on the measures of:

- the societal value that the organization puts back into the economy;
- partnering and joint venturing;
- the license to operate in society;
- reputation among customers; and
- shareholder value as influenced by an organization's ethics.

Knowledge is invisible and intangible, and thus it is not captured very well by any of the traditional measures, accounting or otherwise, that corporations master in their everyday operations (Bontis *et al.,* 1999:392; Hauser and Katz, 1998:520). Because of the nature of knowledge-based assets, Bontis *et al.* think that managers may run the risk of 'forgetting' that the knowledge-based assets are there. Managers may also underestimate the value and contribution of knowledge-based assets of an organization. Decisions may thus be made which in the long-term might prove harmful and costly precisely because of the damage the 'intangible asset stock' of the organization may cause. Wrong decisions may be made if decision makers of an organization ignore or do not make use of the knowledge-based assets available within the organization.

According to Bontis *et al.* (1999:393), the most influential four measurement systems of knowledge-based assets diffused among practitioners are human resource accounting, economic value added, the balanced scorecard and intellectual capital.

The human resource accounting (HRA) system take into account the fact that human capital represents human factor in the organization; the combined intelligence, skills and expertise that gives the organization its distinctive character. Bontis *et al.* further

argue that the human elements of the organization are those that are capable of learning, changing, innovating and providing the creative thrust which if properly motivated can ensure the long-run survival of the organization. Sackman *et al.* writing in 1989 as cited by Bontis *et al.* (1999:393), state that the objective of HRA is to quantify the economic value of people to the organization in order to provide input for managerial and financial decisions. As far as they go, human resource accounting models attempt to calculate the contribution that human assets make to firms by capitalizing salary expenditure.

Bontis *et al.* (1999:394) identify three basic uses to which HRA information may be put:

- as part of the official audited reporting of results to external users of the organizations financial data (e.g. creditors, investors, government, regulatory bodies);
- as internal feedback to organization members on the accomplishment of strategic goals; and
- as a starting point to develop future plans and strategy by recognizing the core competencies inherent in unique intellectual capital resident in the organization.

As a method of assessing, measuring and evaluating knowledge-based assets, the human resource accounting has some weaknesses including:

- too many assumptions must be made when using HRA models for assessing; measuring and evaluating knowledge-based assets;
- all the HRA models suffer from subjectivity, uncertainty and lack of reliability in that their measures cannot be audited with any assurance; and
- it may not be morally acceptable to treat human beings as assets.

Economic value added (EVA) is another possible assessment, measurement and valuation method of knowledge-based assets that Bontis *et al.* (1999:394) identify. EVA is looked upon as a comprehensive financial management measurement system that can be used to tie together capital budgeting, financial planning, goal setting, performance measurement, shareholder communication and incentive compensation.

The objective of EVA is to develop a performance measure that properly accounts for all ways in which corporate value could be added or lost. EVA is purported by its proponents to be the only measure of performance that properly accounts for all the complex trade-offs involved in creating value.

Economic value added may not explicitly relate to the management of knowledge-based assets, but it may be implicitly argued that the effective management of knowledge-based assets may increase economic added value. Marchant and Barsky writing in 1997 as cited by Bontis *et al.* (1999:395) opine that some strategy researchers support the idea of using EVA measures as a surrogate measure for stock of intellectual capital and that EVA can be viewed as a measure for return on intellectual capital.

Economic value added as a technique of measuring, assessing and evaluating knowledge-based assets has some weaknesses. Given the ephemeral nature of knowledge-based assets, EVA may not be effectively used to estimate the value of a training programme or evaluate the value of a best practice database.

Economic added value is subject to several areas of performance adjustments that are supposed to address shortcomings in conventional accounting practices, and thus solve problems such as the accounting of intangibles and long-term investments with a high degree of uncertainty. Among the problematic areas, Bontis *et al.* (1999:395) identify depreciation, capitalization and amortization of research and development, market building, outlays, restructuring charges, acquisition premiums and other 'strategic' investments with deferred pay off patterns.

Another weakness of economic value added as a technique of measuring, assessing and evaluating knowledge-based assets is that organizations which implement the technique face a trade-off between accuracy and complexity. As the number of adjustments increases, the precision of the economic value added calculations may improve, but the system becomes more complicated and vulnerable to challenges by organizational managers.

Another limitation is that the calculation of EVA uses book values of (net) assets. These will in many instances be based on historic cost, which might give little indication of current market or replacement value. Bontis *et al.* (1999:395) argue that the reason for using historic cost is that the market values would have to be updated on regular basis, and that the volatility of the values, and possible estimation subjectivity, would impose large costs on a measurement system, and reduce the objectivity of the measures.

Bontis *et al.* (1999:396) note that EVA assumes a definite governance perspective. The starting point of economic added value is that organizations should be run in the interest of shareholders exclusively. Some organizations might thus resent this characterization of their institutional goal, either because of their particular circumstances (for example state-owned organizations), on ideological grounds or simply because they believe that other perspectives on governance are more for their long-term development.

Dodd and Chen (1997:319) report that in their study on EVA, they found out that it may be a useful measure of corporate performance. However, they do not find EVA to be either as perfect as its advocates claim, nor do they find it to be the only performance measure that may show how to achieve a superior stock return. Dodd and Chen do not necessarily emphasize the use of EVA as a measurement technique for knowledge-based assets of an organization.

Bontis *et al.* (1999:396 and Roos and Roos, 1997:413) identify Balanced Scorecard as another technique of measuring the value of knowledge-based assets of an organization. The Balanced Scorecard is suggested as a measure for non-financial measures such as cycle times, quality rates, customer satisfaction and market shares. According to Roos and Roos, the issues that are involved in the Balanced Scorecard include treating intellectual capital as the sum of the organization's hidden assets which are the most important source of competitive advantage and visualizing intellectual capital systematically.

The Balanced Scorecard organizes its measurement system in four perspectives, namely, financial perspective, customer perspective, internal business perspective and

the learning and growth perspective. The financial perspective includes traditional accounting measures. Customer perspective focuses on identification of target groups, customer satisfaction and customer retention. The internal business process draws heavily from the concept of the value chain. The learning and growth perspective includes all measures relating to employees and systems the organization has in place to facilitate learning and knowledge diffusion.

According to Bontis *et al.* (1999:396) the balanced scorecard draws its strength from the fact that it can help managers carry out four activities:

- communication and linking by achieving a strategic alignment of the objectives of the entire organization;
- business planning by managing targets, co-coordinating initiatives and planning the budget;
- feedback and learning by updating plans, strategies and the balanced scorecard; and
- translating the vision by clarifying the mission and long-term strategy to all constituencies inside the organization.

Bontis *et al.* (1999:397) identify what they believe are weaknesses of the balanced scorecard. One weakness of the balanced scorecard its rigidity which appears in many aspects of the balanced scorecard. First, the perspectives drive the identification of key success factors. This can be limiting because most key success factors will be cross-perspective, impacting on more than one dimension of the intangible resources of the organization. The problem with this is that managers in an organization may not be able to identify all the important Key Success Factors. The managers' attention may be concentrated only on the perspectives and leave out important Key Success Factors for the simple reason that they do not fall neatly into any of the categories

Also, the perspectives themselves can be fairly limiting if organizations take them to be a straitjacket. The four perspectives must never be taken to be a straitjacket. Organizations should be able to expand the number of perspectives as they see fit, but then treat them like a comprehensive classification of all possible measures.

One other limitation of the balanced scorecard is that considerations on the external environment are limited to customers. Organizations are expected to interact and leverage the relationship with other actors like suppliers, alliance partners, collaborators, local community, unions and final consumers.

Another problem that the balanced scorecard has is that of considering employees almost as an afterthought. Human resource is lumped together with information technology systems into the learning and growth perspective. As a consequence, the specific challenge of managing people and their knowledge is underestimated by the Balanced Scorecard. More than that, knowledge is treated like a physical thing – a misconception which might reinforce the mistake many organizations make, to believe that the creation of an information technology system is enough to automatically manage knowledge.

Intellectual capital has also been identified as a technique of assessing and measuring knowledge-based assets by Bontis et al. (1999:397). They look at intellectual capital as the collection of intangible resources and their flows. Intellectual capital is something peculiar to every organization. What may qualify as intellectual capital for one organization may not necessarily qualify as intellectual capital for another organization. For that, intellectual capital is context specific. According to Pearlson and Saunders (2004:298), Skandia; a Swedish insurance company divides intellectual capital into two major categories: (1) human capital, which exists in the minds of individuals: their knowledge, skills, experience, creativity and innovation; (2) structural capital, which includes both (a) organizational capital, the infrastructure which supports human capital (information systems, internal processes, proprietary software and documentation) (b) customer capital, the relationships, satisfaction, longevity, price sensitivity, and financial well-being of long-term customers. Skandia uses these categories to develop a set of measures for progress in managing knowledge.

Bontis *et al.* (1999:400) identify advantages and disadvantages of Intellectual capital as a measure of value for knowledge-based assets. Advantages include:

- the technique enjoys a great deal of flexibility;

- as a measurement technique, intellectual capital is a dynamic model;
- partial external comparison is possible with intellectual capital; and
- the technique is also applicable to measuring the value of knowledge-based assets in not-for-profit organizations.

Some of the disadvantages and or weaknesses of intellectual capital as a measurement technique for knowledge-based assets include:

- metric development of the technique is still at nascent stages;
- the technique tends to concentrate too much on stocks at the expense of flows; and
- the literature covering the technique is confusing and can be misleading.

Roos and Roos (1997:413) also identify some weaknesses of the intellectual capital system:

- the balance sheet approach to intellectual capital does not provide information on the move from one category of intellectual capital to the other category;
- there are many difficulties dealing with indicators, such as selecting the right ones, prioritizing the indicators and making sure they are precise;
- an intellectual capital model may not be able to be applied to both small and large organizations, parts, as well as the whole.

It is hard to put a value on intellectual assets because they take less defined form (Stewart, 1997:235). Stewart however suggests three ways of measuring the value of intellectual capital although he says they are not the best. One way Stewart gives of valuing intellectual capital is by cost. He calls it a "lousy" way of valuing intellectual capital but he says it can be used. The cost of creating intellectual capital is not necessarily related to the value of what is created, Stewart argues. He also says that intellectual capital may be valued by rating the relative strength of an organization's assets versus comparables. He is not very specific on the comparables even so. There could be very few comparables that one may compare with intellectual capital.

Stewart (1997:236) talks of "Valmatrix" as another way of measuring the value of intellectual capital. It lists twenty factors such as pretax margins, breadth of product

line, potential for line extensions, barriers to entry, and licensing potential. For each factor, the asset can be scored from 0 to 5 based on how it is assessed. The best possible score is 100, which may be earned by a rare intangible asset that could be top-of –the-line for all twenty factors. The score can be plugged into an established method of evaluating intangibles (such as royalty rates, asset sales, or even costs.

Most organizations carry out detailed financial measurement and reporting, but few do the same for their intellectual and knowledge assets that are much more valuable (Skyrme, 1999:198). Skyrme further says that this has led in part to the introduction of non-financial performance measurement systems to guide day-to-day management actions. Skyrme gives examples as the Balanced Business Scorecard and the European Foundation for Quality Management Excellence Model. He however contends that these systems do not explicitly capture knowledge measures nor do they help managers identify the underlying cause of different outcomes. In a country where knowledge and information are not highly valued, top corporate managers are likely to question how one may justify investing in an intangible asset like knowledge which cannot be measured by conventional methods and standards.

The above sub-section has so far dealt with general issues in knowledge management. The following sub-section deals specifically with issues arising from the research questions of this study. Overlaps may be expected as the questions in the study emanate from the literature reviewed.

3.6 Processes, procedures and tools of knowledge management

Like any other management endeavour, there are processes, procedures and tools of management associated with the management of organizational knowledge. Such processes, tools and procedures may or may not be universally applicable as knowledge management environs differ from one region to the other or even from one organization to the other.

3.6.1 Knowledge management processes

Knowledge management is a continuous process that does not stop in organizations. According to Alavi and Leidner (2001:123), knowledge management consists of a dynamic and continuous set of processes and practices embedded in individuals, as well as in groups and physical structures. Alavi and Leidner further argue that at all times and in any part of a given organization, individuals and groups may be engaged in several different aspects and processes of knowledge management. For that reason, knowledge management should never be treated as a discrete, independent and monolithic organizational phenomenon.

A process should be characterised with specific activities that mark the different stages of that process. According to Ruggles (1998:81), there are eight activities which constitute the basic knowledge management processes. Ruggles identifies the activities as:

- generating new knowledge;
- accessing new knowledge from outside sources;
- using accessible knowledge in decision making;
- embedding knowledge in products and/or services;
- representing knowledge in documents, databases and software;
- facilitating knowledge growth through culture and incentives;
- transferring knowledge into other parts of the organization;
- measuring the impact of knowledge assets and/or impact of knowledge management.

Measuring the impact of knowledge assets is still a contentious issue in the available literature and Ruggles does not seem to give any hint on how one may go about measuring the impact.

The prime work of a knowledge manager is to separate the knowledge management of knowledge processes from knowledge management of knowledge workers (Gao, Li and Nakamori (2002:9). Gao, Li and Nakamori further argue that a knowledge manager must be able to "manage" the favourable environment for knowledge workers to be engaged in knowledge processes and also "manage" these knowledge

workers. According to Gao, Li and Nakamori, a knowledge manager must be able to create a favourable environment, manage the environment and also manage knowledge workers.

Gao, Li and Nakamori do not however say what they mean by a favourable knowledge environment nor do they say what they mean by knowledge workers who must be managed by a knowledge manager. Wiig (1994:110) alludes to a favourable knowledge environment. It is that environment which provides internal, physical and social environments that are desirable to employees at all levels of an organization. Such environment should also be concerned with creating and maintaining desirable external environments – physical, economic, social and so on. Wiig (1995:475) defines a knowledge worker as the individual who makes her/his contributions through exercising intellectual expertise and understanding.

On the other hand, Drucker (1999:18) defines knowledge workers as those workers not employed full time by an organization and who are not subordinates but "associates". Drucker further argues that knowledge workers must know more about their job than their boss does – or else they are no good at all. Knowing more about their jobs than anybody else in the organization should be looked as part of the definition of knowledge workers.

Gao, Li and Nakamori (2002:9) identify the major knowledge management activities as including managing existing knowledge which includes developing of knowledge repositories and knowledge compilation; managing knowledge acquisition; creating new knowledge; distribution of knowledge; communication/transfer of knowledge; sharing of knowledge; and application of knowledge. In order to sustain these processes, Gao, Li and Nakamori aver that both "hard" conditions and "soft" environments have to be created and nurtured.

The hard side refers to technological platforms which may include facilities and necessary devices. The soft side consists of trust, team spirit, and a learning climate for improving the productivity of contributors. At organizational level, distinctive organizational visions and strategies should be formulated to guide and regulate knowledge management; evaluation and reward institutions should be created to

define responsibility and liability of individuals and organization. The knowledge management process in this case requires a knowledge manager to be able to evaluate the knowledge management technologies, build trust, build team work spirit in an organization, advise on knowledge management strategies and assist in evaluation and reward policies.

In their work with highly skilled and specialised development and consulting teams, Eppler and Sukowski (2000:337) suggested four crucial team knowledge management processes:

(1) *Team knowledge auditing:* The goal of this process, which should take place at the beginning of team collaboration, is to make the present team knowledge (skills, experiences, contacts, assumptions) transparent and discover knowledge deficits in the team for the tasks at hand. Specifically, the "know-what" (available information), "know-how" (skills and prior experiences), "Know-who" (inside and outside contacts, and "know-why" (goals, motivations, expectations and basic assumptions should be made explicit. A simple form of knowledge audit consists of every team member being able to describe another team member's professional background and experience in a plenary session.

(2) *Team knowledge development:* An on-going process, this consists of knowledge acquisition from outside sources and knowledge creation activities through experimentation or conceptual collaboration in the team. This process culminates in common knowledge "artefacts" such as concepts, prototypes, formalised ideas, protocols or reports.

(3) *Mutual updating and briefing:* The goal of this process is to combine the individual insights with the team stock of knowledge. This process can have a simple team presentation or it can take on more elaborate briefing formats such as question and answer sessions, poster rooms, or meta-plan workshops.

(4) *Reviewing:* The goal of this process is to reflect systematically about the insights that the team was able to gather during a process or project phase. Questions to be answered in this phase include: what has worked well in our

collaboration? What has not worked and why? What are we going to do differently as a result of these insights?

Van Zolingen, Streumer and Stooker (2001:171) state that knowledge management is characterised as a cyclical process consisting of five phases: acquiring knowledge; establishing knowledge; disseminating knowledge; developing knowledge; and applying knowledge. Acquiring knowledge means incorporating new knowledge in the organization. Establishing knowledge means making knowledge explicit and accessible so that, if desired, other people can acquire the knowledge any time anywhere. Dissemination of knowledge is making knowledge available and accessible to those who need it in the execution of their tasks. In the fourth phase, knowledge is being developed by means of existing knowledge. By combining elements of existing knowledge, new insights can be formed and thus new knowledge can be developed. The fifth phase of the process of knowledge management is the application of newly developed knowledge. In this final phase, knowledge is being used on behalf of the organization.

There appears to be a general agreement that a knowledge design process is required to identify and leverage collective knowledge of an organization (Wild, Griggs and Downing 2002:371). Writing in 1997, Weggeman as cited by Wild, Griggs and Downing (2002:371) defines the knowledge value chain as four successful constituent processes:

- An organization's strategic knowledge requirements need to be identified.
- The knowledge gap (the quantitative and qualitative difference between the knowledge need and that available) needs to be determined.
- The knowledge gap needs to be closed either by developing new knowledge, buying knowledge, improving existing knowledge, or getting rid of out of date or irrelevant knowledge.
- The knowledge available needs to be disseminated and applied to serve the interests of customers and other stakeholders.

Hooff, Vijvers and Ridder (2003:239) agree with Weggeman on the importance of the processes, but they do not think the processes are sufficient to focus an organization's

knowledge management activities. They think that for effective knowledge management, it is necessary to align these processes with an organization's mission, vision, strategy and goals. Hooff, Vijvers and Ridder (2003:240) come up with a knowledge management processes model that they call a "fly-wheel." The essence of the "fly-wheel" model is to demonstrate that the different processes and aspects of knowledge management should receive simultaneous attention, while the frequency and intensity with which attention is paid to each of the knowledge management processes and aspects vary across time.

Turner and Makhija (2006:201) identify what they call four critical stages of an organization as: (1) knowledge creation and acquisition; (2) the transfer of knowledge to other individuals or organizational units; (3) the interpretation of this knowledge in a manner conducive to the objectives of the organization and (4) the application of any indication of how one may apply knowledge toward an organization's goals.

Wild, Griggs and Downing (2002:375) consider organizational readiness to be part of the knowledge management process in an organization. They assert that organizational readiness is a prerequisite for supporting the knowledge management processes in an organization. They further say that organizational readiness is determined by having in place: infrastructure, knowledge editor, a sharing organizational culture, positive employee attitude, identification of the organizational strategic knowledge needs, computer literate employees and an organization that is sufficiently "wired" for information and knowledge transfer and sharing.

3.6.2 Organizational Structure and Knowledge Management

According to Gold, Malhotra and Segars (2001:188), organizational structure is important in leveraging technological architecture. They argue that organizational structure is intended to rationalize individual functions or units within an organization, but structural elements have often had the unintended consequence of inhibiting collaboration and sharing knowledge across internal organizational boundaries. In the opinion of Gold, Malhotra and Segars, organizational structures that reward individuals for "hoarding" information can inhibit effective knowledge management across the organization. For that matter, they recommend that

organizational structures be designed for flexibility as opposed to rigidity so that they encourage sharing of knowledge and collaboration across boundaries within the organization and across the supply chain. Gold, Malhotra and Segars (2001:186) state that the quest to move beyond information management and into the realm of knowledge management is a complex undertaking which involves the development of structures that allow an organization to recognize, create, transform, and distribute knowledge. Bureaucratic structures are known for controlling rather than promoting the free sharing of information. Regarding knowledge, Nonaka and Takeuchi (1995:241) specifically contend that bureaucracy is not suited for organizational knowledge creation. They think that bureaucracy curtails individual initiative because of its strong propensity for control and cannot be flexible in periods of uncertainty and rapid change. It is not suited for acquiring, creating, exploiting and accumulating tacit knowledge.

Knowledge needs to be distributed and shared throughout the organization before it can be exploited at the organizational level (Bhatt, 2001:72). Bhatt however argues that effective distribution and use of knowledge at organizational level may be affected by the interactions between organizational technologies, techniques, and people. Bhatt gives an example of an organizational structure based on traditional command and control which minimizes the interactions between technologies, techniques and people, hence reducing the opportunities in knowledge distribution and sharing. Bhatt contends that horizontal organizational structures, empowerment, and open-door policy have the potential to speed up knowledge flow between different participants and departments.

3.7 Information and Communication Technologies (ICTs)

The history of the knowledge society may not be complete without mentioning the major technological revolution that has taken place and that has caused the digital divide between the industrialized economies and developing economies. The technological revolution has made knowledge and information production and dissemination easier and a lot faster than ever. It is a revolution of crucial importance in that it basically involves technologies for knowledge and information production and dissemination (David and Foray, 2002:11). These new technologies, say David

and Foray, first emerged in the 1950s and then really took off with the advent of the Internet, have impressive potential. The technologies enable remote access to information and to knowledge too. They also allow users to access and work on knowledge systems from a distance. Examples are like tele-education, remote experimentation and the digital libraries. The technologies now allow people to create knowledge and information in large quantities, they enhance creative interaction between product designers, suppliers and end customers and they enable the processing of high volumes of data in databases.

Development of knowledge management approaches has mostly been dominated by "technologists", not always guided by insights of the needs and visions of user organizations (Wiig, 1993:424). Wiig attributes this approach to the relatively small inroads knowledge management has made in most organizations. He seemingly thinks that it is essentially an "embryonic technology" that still suffers from "technology push" rather than "demand pull". In other words, Wiig thinks that manufacturers of technology are trying to push organizations to acquire the technology that is associated with knowledge management rather than the organizations truly requiring the technology. Another probable cause is that many find the concepts of knowledge management to be foreign, and even difficult. For that reason, managers and business people are not yet participating materially in shaping the directions of knowledge management.

Frappaolo (1998:80) suggests a model for matching technologies against knowledge management functions. He proposes four basic functions as: externalization, internalization, intermediation and cognition. Externalization requires using technology to capture knowledge in external repositories and organizing it according to a classification framework or taxonomy with the help of technology. Internalization filters or matches that explicit knowledge to a particular user's needs. Intermediation brokers tacit knowledge by matching the knowledge seeker with the best source of knowledge in that area such as another expert. Cognition refers to the application of knowledge that has been transferred through the preceding functions.

Technology is a powerful enabler of knowledge management objectives (Tyndale, 2002:184). Tyndale contends that the goal of a knowledge management tool is not to manage knowledge by itself but to facilitate the implementation of the knowledge

process. Such tools can facilitate the process of generating, structuring, and sharing knowledge through the use of information technology.

Frappaolo (1998:80) opines that in seeking to match technologies with these knowledge processes, the trick is to see how existing technologies might creatively be employed together with new technologies, bearing in mind that the technologies overall should be context-and-user-sensitive, flexible, heuristic, and suggestive. He strongly cautions that technology should be considered as secondary to creation of an appropriate knowledge culture.

Many organizations have started to realize that information technology may help them to manage the efficient flow and transfer of knowledge across the organization (Silver, 2000:29). Organizations look at information technology as a panacea for all knowledge management problems and as the best way to bring order to chaos. The reason for this, Silver says is because technology represents a tangible and immediate solution. However, Silver, like Marwick (2001:817) warns that technology alone may not be the answer to knowledge management problems. This is because knowledge management is a multi-dependent discipline integrating business strategy and process, organizational community and culture, collaboration, learning, expertise, and technology. Information technology forms only part of the disciplines that knowledge management depends on.

The ICT sector represents a variety of devices, technologies and services built on scientific breakthroughs in computers, software design, photo-optics, circuit switching, and satellites, among others. The most ubiquitous of the ICT revolution is the Internet, which integrates telecommunications and computing (Fieldman, 2002:48). Fieldman further argues that digital information is compact, transportable, and, therefore more efficient to use. With the new digital media, the cost of reproducing information approaches zero. This neglects the cost of archiving information – the paradox is that securing a knowledge environment depends as much on preserving content as making the content available in the first place.

Among the existing technologies that support knowledge management are information systems, the Internet, groupware, and planning tools such as enterprise

resource planning (ERP) systems (Daft, 2000:287). Daft goes further to identify two relatively new technologies that support knowledge management as data warehousing and data mining. Data warehousing is the use of a huge database that combines all of a company's data and allows users to access the data directly, create reports, and obtain answers to what-if questions. On the other hand, data mining is software that uses sophisticated decision-making processes to search raw data for patterns and relationships that may be significant.

Marwick (2001:816) contends that the use of technology in knowledge management is not new, and that considerable experience has been built up by the early pioneers. Marwick avers that even before the availability of solutions such as Lotus Notes on which many contemporary knowledge management solutions are based, organizations were already deploying intranet such as EPRINET, based on early generations of networking and computer technology that improved access to knowledge "on-line." EPRINET is an invention of the US-based Electronic Power Research Institute (EPRI) – a research and development consortium for the US electric utility industry. EPRINET is an electronic linkup to energy research information worldwide. It is based on the shopping centre concept of having "anchor services" and "specialty services." Anchor services continually draw people into the network. The four anchor services are electronic mail, natural English language retrieval system, electronic directories and catalogs, and video conferencing. EPRINET uses information technology to leverage knowledge in the form of pioneering research and development work in the electronic utility industry managed by the Electronic Power Research Institute (EPRI).

Ackerman (2000:183) and Shariq, (1998:14) concur with Marwick (2001:817) that technology alone cannot be fully relied on for solving all knowledge management problems. Ackerman argues that human activity is highly flexible, nuanced and contextualized. Marwick on his side cautions that knowledge management problems can typically not be solved by the deployment of technology solutions only. He identifies change as the greatest difficulty in knowledge management. He also identifies "culture" as the biggest impediment to knowledge transfer.

In underscoring the importance of IT for knowledge management, Pan and Leidner (2003:83) say that information technology has different roles to play as knowledge management systems are established and evolve in organizations. They contend that information technology moves from being the underlying infrastructure, to the linking mechanism, to the support mechanism. In the same vein, Zack (1999:49) credits information technologies for playing an important role in the flow of explicit knowledge which he says has a five-stage process. The stages are: Capturing knowledge; defining, storing categorizing, and linking digital objects that correspond to knowledge units; searching relevant content and presenting content in a flexible, meaningful and applicable manner across various contexts of use. Zack further says that for use of information technology to communicate knowledge effectively, it requires that an interpretive context is shared in an organization. Communicators, who share similar knowledge, background, and experience, can more effectively communicate knowledge via electronically mediated channels.

Gottschalk and Khandelwal (2004:378) propose a four-stage model for the evolution of information technology support for knowledge management in law firms. The first stage is the general information technology support for knowledge workers in law firms. This stage includes word processing, spreadsheets and e-mail. The second stage is information about knowledge sources. In this stage, information technology helps to store information about who knows what within and outside the organization. The system may not store what such people actually know, but it can store names of individuals who have knowledge in different specialized or general areas. The third stage is information representing knowledge. The system in this stage stores what knowledge workers have in terms of information. The last and fourth stage is information processing. An information system uses information to evaluate situations.

Sena and Shani (1999:8-9) give a range of common knowledge management technologies that have been adopted by knowledge intensive firms as shown in table 3.1 below. Some of the technologies have been adopted by the organizations investigated, yet some other technologies have not been adopted. Many of the technologies depend on the older and better known technologies like telephones and computers. Telephone lines and computers enable e-mail and Internet connectivity.

E-mail	100.0%
Internet	100.0%
Videoconferencing	100.0%
Project management systems	91.0%
Groupware	91.0%
Intranet	82.0%
Knowledge-based systems	82.0%
Customer management systems	73.0%
Skills inventory systems	64.0%
Yellow pages for knowledge	44.0%

Table 3 -1: Knowledge management technologies and the level of adoption. Source: Sena and Shani, 1999.

This researcher observes that if knowledge management is considered a process, sourcing knowledge from whatever source would be considered an important function of any knowledge management programme. In their study on knowledge sourcing methods, Gary and Meister (2006:143) found out that technology-based methods of knowledge sourcing are neither inherently superior nor inferior to traditional non-technology based methods of knowledge sourcing. They consider knowledge sourcing to be fundamentally a communication behaviour which may use either electronic or non-electronic means.

Knowledge management may not necessarily require the use of information technology, but throughout the literature, there seems to be an agreement that information technology will most likely play a dominant role in facilitating knowledge management (Wild, Griggs and Downing, 2002:371). Wild, Griggs and Downing identify one obvious use of information technology in enabling knowledge management as e-learning, the creation and distribution of knowledge through the on-line delivery of information, communication, education and training.

Foy (1999:15-4) contends that technology capabilities available today have facilitated the heightened focus that the concept of knowledge management has assumed. Foy contends that because of information technology, workers can get and do much more with information than has ever been possible before. Foy, like Alavi and Leidner (2001:114), cautions that one cannot buy knowledge management only through an investment in technology as technology greatly helps the knowledge management process. Alavi and Leidner say that while information technology does not apply to all

of the issues of knowledge management, it can support the process of knowledge management in sundry ways. Examples of how information technology may support knowledge management include increased speed of finding an expert or a recorded source of knowledge using online directories and searching databases; sharing more knowledge and working together in virtual teams; faster access to information on past projects; and learning about customer needs and behaviour by analyzing transaction data.

Stankosky (2005:5) introduces the idea of the technology pillar which deals with the various information technologies peculiar to supporting and/or enabling knowledge management strategies and operations. One type of taxonomy used relates to technologies that support the collaboration and codification of knowledge management strategies and functions.

Teece (2000:9) thinks that the new information technology is dramatically assisting in the sharing of information such that learning and experience can much more readily be captured and shared. He says that the new information technology now makes it possible for knowledge learned in an organization to be catalogued and transferred to other applications within and across organizations and geographies.

Virtual organizations highly depend on technology to make knowledge available to all members wherever they may be. To make it possible to share knowledge in virtual organizations, information and communication technologies like groupware, intranet, knowledge maps, and knowledge databases provide additional support (Blecker and Neumann, 2000:79). As a result, the personnel development has to strengthen the technical and methodical as well as the social and communicative competencies on an individual level.

3.8 Knowledge management tools

The *Oxford advanced learner's dictionary* defines a tool as a thing that helps you to do your job or achieve something. By extension, knowledge management tools may be looked upon as the tools which help knowledge managers to do their jobs and/or achieve the objectives of knowledge management Writing in 1997, Ruggles as cited

by Tyndale (2002:183) defines knowledge management tools as those tools which support the performance of applications activities or actions such as knowledge generation, knowledge codification or knowledge transfer.

In the available literature, it appears like the terms "information technology" and "knowledge management tools" are used interchangeably. Writing in 1993, Grantham and Nichols as cited by Tyndale (2002:184) contend that not all knowledge management tools are computer based, but much emphasis is placed on these electronic tools due to their dynamic capabilities, quick evolution and organizational impact.). Ngai and Chan (2005:889) for instance contend that vast numbers of knowledge management tools are available in the software markets to support knowledge management even though no framework currently exists to aid in evaluation and selection of the tools.

Duffy (2001:65) enumerates the tools and technologies that he says are required for knowledge management as repositories, groupware, and data warehousing infrastructure, content management software, business management systems, knowledge management access software, intellectual management software, and workforce management applications. The other tools Duffy lists are knowledge exchange platforms, knowledge workflow management software and knowledge profiling technologies. Duffy does not quite differentiate between knowledge management tools and information technology. Many of the tools he mentions are products of information technology. The consequence of this mix up may be that organizations might want to believe that if they have acquired information technology, then they have acquired all the tools for managing knowledge. This mix up may also lead organizations to erroneously think that information technology may create knowledge rather than providing an infrastructure for capturing and transferring it.

Shariq (1998:11) considers the creation of knowledge through self-reflection, interaction with other humans or interaction with artefacts to be essentially a human process. He also considers the codified knowledge, to be essentially processed by humans. For that matter, the products, processes and software developed by human efforts are considered as artefacts (or tools) that embody human knowledge. In other

words, products, processes and software developed by human efforts may serve as a manifestation of human knowledge.

As the complexity of knowledge work expands, knowledge workers increasingly depend on cognitive artefacts to help them perform (Shariq, 1998:12). Such artefacts include electronic mail, collaborative tools such as Lotus Notes, video conferencing, specialized analytical engines for search, retrieval, data mining and data warehousing, and experiential learning devices such as simulators. However, Shariq (1998:13) avers that the knowledge management tools are far from being capable of performing at human level, but they are necessary and integral components of the knowledge communities or networks on which the overall performance of individuals and organizations must perform.

In considering tools for knowledge management, any analysis must go well beyond the consideration of the individual tool, taking into account the complete context of organizational knowledge activity (Eppler and Sukowski, 2000:336; Shariq, 1998:14). Knowledge management must address issues relating to team rules, conventions, and general norms. The tools should also address issues such as team norms as organizational purpose, conduct, terminology (i.e. shared meanings) and accountability.

Wild, Griggs and Downing (2002:372) consider e-learning to be a revolutionary way to empower a workforce with the skills and knowledge it needs to turn change to an advantage. They say that many corporations are discovering that e-learning has many of the same attributes as basic knowledge management processes and thus may be used as a tool for knowledge management.

Benbya, Passiante and Belbaly (2004:204) contend that knowledge is of limited value if it is not shared. Organizations are therefore starting to implement information systems designed specifically to facilitate the generation, integration, sharing and dissemination of organizational knowledge. Benbya, Passiante and Belbaly argue that such systems are referred to as knowledge management systems and they fall into four categories, namely content management tools, knowledge sharing tools, knowledge search and retrieval systems and general knowledge management systems.

Content management tools offer abilities to integrate, classify, and codify knowledge from various sources. Knowledge sharing tools support sharing of knowledge between people or other agents. Knowledge search and retrieval systems enable search and retrieval and have some knowledge discovery abilities. General knowledge management systems propose an overall solution for an organization's knowledge management needs.

Cisco Systems (2001), an organization that promotes e-learning as part of its knowledge management strategy, outlines the benefits of e-learning as follows:

- E-learning provides a new set of tools that can add value to all the traditional learning models – classroom experiences, textbook study, CD-ROM, and traditional computer-based training.
- Old-world learning models do not scale to meet the new world learning challenges. E-learning can provide the tools to meet that challenge.
- With e-learning, you can empower learners, and the learner as well as the mentoring system is held accountable.

E-learning, which is identified as a knowledge management tool, is entirely information technology dependent. Very few knowledge management tools identified in the literature are not information technology dependent.

According to Gamble and Blackwell (2001:136), there are estimated to be between 200 and 300 knowledge-management-related technologies available for managers to choose from. Such technologies include Monte Carlo simulations, qualitative techniques like focus groups and logistical techniques like network analysis or workflow measurement. Gamble and Blackwell aver that the aim of selecting knowledge management tools is to make sure the tools will support two basic processes – the use of existing knowledge and the creation of new knowledge. Such tools should enhance better exploitation of existing knowledge as well as faster and better creation of new knowledge in support of innovation. Gamble and Blackwell propose a range of knowledge management tools as shown in figure 3.2 below. The figure shows four processes for recording knowledge against knowledge types.

For each process, a technique considered most appropriate for capturing the knowledge is proposed. Under sensing, it is suggested that embodied knowledge may best be captured through observation, represented knowledge may best be captured by gathering and collating it together while embedded knowledge may best be captured by hypothesizing how and where the added knowledge is held. When knowledge is organized, embodied knowledge needs to be put into context so that it is known where it is used and for whom it is appropriate. Representative knowledge should be categorized, and embodied knowledge mapped to processes and products. In the case of socialization, the relevant activities are sharing, disseminating and simulating. The internalization activity for all three types of knowledge is to determine how it may be applied, understand when and where to use it and then to put it to actual use.

Type Approach	Embodied	Represented	Embedded
Sense	**Observe** • Knowledge surveys • Workshops/interviews • Network analysis	**Gather** • Business intelligence • Text and data mining • Intelligent agents	Hypothesize • Market/customer/competitor analysis • Modeling/reasoning tools • Reverse engineering
Organize	**Contextualize** • .Focus groups • . Expertise guides • .Knowledge coordinators	**Categorize** • Knowledge taxonomies • Libraries • Data marts	**Map** • Job/workplace design • Workflow analysis • Performance measures
Socialize	**Share** • Mentoring/coaching • Communities of practice • Conferencing tools/groupware	**Disseminate** • Broadcast tools/Internet/Intranet/ e-mail • Distance learning • Application systems	**Simulate** • Scenario planning • After-action reviews • Training/competency management
Internalize	**Apply - Decide - Act**		

Table 3-2:-Range of tools used in approaches to knowledge management. Adapted from Gamble and Blackwell (2001:138).

In the literature, much has been written on knowledge management tools. However, there is no framework currently in existence to aid in the evaluation and selection of knowledge management tools (Ngai and Chan, 2005:889). Ngai and Chan come up with what they call the analytic hierarchy process (AHP) to aid decision-making in evaluating knowledge management tools. Ngai and Chan (2005:892) identify three

essential evaluation criteria in selecting the best knowledge management tools as cost, functionality and vendors. Regarding cost, Ngai and Chan talk of the expenditure associated with knowledge management systems and include product, license, training, maintenance and software subscription costs that should be reasonably affordable. Functionality refers to those features that the knowledge management tools perform and it also generally refers to how well the software can meet the user's needs and requirements. Six key fundamental elements of knowledge management tools are document management, collaboration, communication, measurement, workflow management and scalability.

Coleman (1999:12-3) lists twelve functions that Groupware as a knowledge management tool is capable of performing. The functions are:

- Electronic mail and messaging
- Group calendaring and scheduling
- Electronic meeting systems
- Desk video and real-time data conferencing (synchronous)
- Non-real-time data conferencing (asynchronous)
- Group document handling
- Workflow
- Workgroup utilities and development tools
- Groupware services
- Groupware and knowledge management frameworks
- Groupware applications
- Collaborative-Internet-based applications and products

Groupware as a knowledge management tool may not perform all these functions without depending on information technology. However, Cole says that Groupware maximizes human interaction while minimizing technology interference. He further argues that Groupware supports the efforts of teams and other paradigms, which require people to work together, even though they may actually not be together, in either time or space.

Coleman (1999:12-11) cautions organizational development and human resources professionals to realize that the knowledge management tools are only but enablers.

The tools support the inexpensive transportation, creation, distribution and sharing of knowledge. These are basically the functions of any knowledge management programme.

This researcher observes that knowledge management in organizations based in countries where ICTs are well developed should have an advantage over organizations based in countries where ICTs are not quite developed like in Kenya. If the contention of Coleman (1999:12-11) is anything to go by, then it is the ethos and culture of knowledge management that is vital and that the tools (and hence reliance upon ICT) is very much secondary. This may be interpreted to mean that knowledge management may be practiced, with advantage, in any country or organization even though the practice would be more efficient if the ICT infrastructure is good. The costs of telecommunications are still high in Kenya and the creation and transfer of knowledge with the help of ICTs in large amounts may take time but may be possible in future. The Internet, which integrates communication and computing, is still costly and inaccessible to many people in Kenya. Completely cost-free access to the Internet even in business organizations in Kenya is still a rare phenomenon. Generally speaking, government-owned organizations in Kenya operate in environments, which are not information intensive and where knowledge creation and sharing is limited. This researcher considers the creation and sharing of knowledge limitation to be a restriction arising from lack of technology in Kenya.

This section of the literature review has covered definitions of knowledge management, origins of knowledge management, epistemological and ontological grounds for knowledge management, proposed theories of knowledge management, major issues, and debates about knowledge management to date, the main questions and problems of knowledge management addressed to date, and some research questions raised in this study.

There is no universal agreement of exactly what knowledge management is. Definitions in the literature approach knowledge management from several points of view. For one, knowledge management is viewed from the point of activities. From this view point, the activities that make up knowledge management include identifying, acquiring, capturing, evaluating and sharing knowledge. Capturing and

sharing tacit knowledge resident in the expertise of individuals is also seen as one of the major activities of knowledge management.

Other definitions of knowledge management evolve around practice. The practice-based activities include creating, gathering, and organizing, diffusing and exploiting knowledge. Making knowledge widely available and fostering a culture of learning in organizations are some of the activities which make up knowledge management. Learning in organizations is meant to enable employees to acquire new skills, knowledge and capabilities. It should however be noted that there are limitations to learning in organizations. Some of the limitations to learning in organizations include the unwillingness of organizational members to learn and inappropriate methods of training organizational members.

Knowledge management is looked upon as a process. The idea of a process arises from the fact that knowledge management is a dynamic and continuous process. At all the times, there is likely to be a knowledge management activity going on in an organization. Such activities include acquisition of knowledge from outside the organization, creation of knowledge within the organization or transferring of knowledge within the organization.

Other definitions evolve around the functions of knowledge management. Such definitions look at the major functionalities of a knowledge management programme of an organization. The functions include creating, mapping and transfer of knowledge.

The concept of knowledge management largely treats knowledge as an object that can be acquired, organized and stored in some kind of media and shared by members of an organization. The concept treats knowledge as a very scarce strategic resource that gives an organization an advantage. The concept also treats knowledge as a commodity that can be owned and that can be traded in the marketplace. It is not clear how organizations can own expertise and tacit knowledge which reside in people's minds. Organizations may benefit a great deal by looking for ways and means of capturing and retaining expertise and tacit knowledge.

There is emphasis on investing in people or enabling people to acquire new skills, knowledge and capabilities. As a result, learning in organizations is given significance in the knowledge management discourses.

3.9 Organizational learning

What is organizational learning and how does it fit in the discourses of knowledge management? This researcher observes that "organizational learning" and "learning organization" are to a very large extent used interchangeably in the literature. Several theories have been put forward supporting the idea that organizational learning embraces the creating, sharing and transfer of knowledge and information. Organizational learning is a collective process of inquiring and experimentation that uses groups as a forum to help employees draw new meanings from their past experiences (Cavaleri, Seivert and Lee, 2005:215). According to Skyrme (1999:202), a learning organization may be defined as one that is committed to learning, both for personal development and the organization as a whole. Time devoted to thinking and learning is recognized and rewarded. Organizational learning involves learning from both successes and failures. Huber (1991:88) avers that there are four constructs integrally linked to organizational learning (knowledge acquisition, information distribution, information interpretation, and organizational memory).

Saint-Onge and Armstrong (2004:157) aver that learning is the primary approach for generating capabilities and skills. They say that in a conducive organization, the knowledge architecture supports processes, which can be viewed in themselves as complex systems that create knowledge. New knowledge, skills and capacities of an organization are all about securing the future success of an organization. This is basically in support of Senge (1990a:3), who contends that learning serves the purpose of "continually expanding an organization's capacity to create its future." Chowdhury (2000:242) is equally optimistic about the future success of a learning organization. To justify his contention, Chowdhury argues that organizations that learn seem to have the capacity to re-invent themselves, to manage knowledge and to adjust to changing competitive trends and conditions. Chowdhury seems to be convinced that some organizations learn while others do not learn.

According to Levitt and March (1988:320), organizations are seen as learning by encoding inferences from history into routines that guide behaviour. Routines include the forms, rules, procedures, conventions, strategies, and technologies around which organizations are constructed and through which they operate. Routines also include the structure of beliefs, frameworks, paradigms, codes, cultures, and knowledge that buttress, elaborate, and contradict the formal routines.

Marsick and Watkins (1999:12) look at learning as "the process that makes the creation and use of knowledge meaningful." To a major extent, organizations have realized that their competitive advantages within the framework of the knowledge economy are contingent on competence that workers possess (Johannessen, Olsen and Olaisen 2005:151). Acquiring competencies and new skills requires training and learning, hence, the importance of organizational learning. Johannessen, Olsen and Olaisen (2005:163) look at organizational learning as:

- the ability of an organization to continue changing critical processes, resulting from changes in the environment;
- creating its own future, independent of internal and external information and communication systems, for the purpose of reaching established targets; and
- changing these targets by means of internal and external information and communication systems, with joint contributions of individuals.

Marsick and Watkins (1999:101) explain what they think to be the relationship between learning, organizational learning and knowledge management as:

> *If a continuous learning system enables an organization to build new competencies and capacities among its members, a knowledge management system enables the organization to translate that learning into knowledge that adds value. Knowledge management, by focusing attention on the processes that create knowledge and which preserve it, enables organizations to grow and renew themselves. This is the essence of the learning organization (Mrasick and Watkins, 1999:101).*

Marsick and Watkins pose fundamental questions which they think should be asked so as to guide policy makers on decisions that should be made in establishing a knowledge management system:

- What vision guides choices on what to include or exclude from the knowledge system?
- Once selected for inclusion, how should information be updated?

- Who should do the selection and inputting of information?
- How should knowledge be organized so that it is easily understood and easily found?
- How should the system be designed so that people may easily add or access information?
- How should people be rewarded for adding their knowledge to a knowledge base so that others can access it?
- How should people be rewarded for using the system?

All organizations must learn (Gehani, 1998:316; Lank, 1997:406), although not always for the better. Gehani contends that a learning organization is an organization that has an enhanced capacity to learn, adapt, and change. It is an organization in which learning processes are analyzed, monitored, developed, managed, and aligned with improvement and innovation goals. Such an organization's vision, strategy, leaders, values, structures, systems, processes, all work to foster people's learning and development. Lank on the other hand defines a learning organization as "An organization that harnesses the full brainpower, knowledge and experience available to it, in order to evolve continually for the benefit of all its stakeholders".

Szulanski (2003:73) says a learning organization is characterized by prepared units and sub-units that are intimately connected, and that either at the sub-unit level or at company level, there exists the necessary processes and norms to add to existing knowledge. Szulanski contends that in such an organization, useful productive knowledge is broadly put to use and transfers of knowledge are simply non-events.

In a learning organization, there is a focus on competency development and continuous learning (Foray, 1999:15-5). Foray thinks that remote or distance learning may also play a significant part in enhancing acquisition of new skills and knowledge in a learning organization. Cultural aspects of the work environment of a learning organization that must be built and nurtured in a learning organization include trust, teamwork, and behaviour that support other people at the same time and that support the fact that the organization values learning.

Wiig (1993:212) also adopts the view that organizations need to learn. Wiig says that all organizations are operated to make sure that they are successful and attain their operating objectives to the largest extent possible. Learning in organizations is not guaranteed and organizations do not always attain their operating objectives because of learning alone. Issues like environment, culture and organizational policy may determine the extent to which learning takes place in any organization. Organizations need to be better than their competitors in order to stay ahead, and must maintain or increase their financial and market positions as the world around them changes. To meet these expectations, Wiig thinks that organizations constantly need to change and improve. They therefore constantly need to learn – from their own experiences, from research, from observations of what others do, and from any available sources. Organizations also need to exploit what they learn to make sure the new knowledge is available at all relevant points-of-use in a timely fashion and with ease.

Garvin (1993:80) argues that many discussions of learning organizations have been "reverential and utopian" and filled with near mystical terminology. He gives his own definition of a learning organization as "an organization skilled in creating, acquiring, and transferring knowledge and modifying its behaviour to reflect new knowledge and insights". Garvin (1993:81) outlines what he calls five building blocks of learning as: systematic problem solving, experimentation with new approaches, learning from new approaches, learning from own experience and past history, learning from the experiences and best practices from others, and transferring knowledge quickly and efficiently throughout the organization.

Wild, Griggs and Downing (2002:375) consider the concept of a learning organization to be a very important component of knowledge management which requires that the organizational learning process should involve not only training and education, but also a means for sharing and disseminating knowledge among organizational members to achieve improved organizational performance. The essence of a knowledge management programme is to enable an organization to improve its performance and in a way organizational learning may help an organization to achieve improved organizational performance.

Through learning, a fundamental shift or movement of the mind occurs (Senge, 1990b:13). According to Senge, learning results in: people recreating themselves; becoming able to do something they never were able to do before; re-perceiving the world and their relationship to it; extending their capacity to create; and becoming part of the generative process of life. These comments by Senge may be interpreted to mean that through learning in an organization, people may be able to acquire new knowledge and skills which may enable them to perform better, resulting in overall improved organizational performance.

Levinthal and March (1993:106) identify two characteristic features of learning that are of importance to competitive advantage. The first characteristic is that learning generally increases average performance. More experienced and more extensively trained individuals and groups will generally do better than less experienced or less trained individuals. The second positive characteristic of learning is that more experienced and more extensively trained individuals and groups produce fewer surprises. Learning is more likely to lessen the chances of unforeseen consequences. When employees of an organization are well trained and learned, they are likely to adapt more easily to technological and economic changes. Such employees may also easily adapt to new working procedures that an organization may introduce.

The issue of whether an organization can learn or has the ability to learn is still a contentious one. According to Lawson and Ventriss (1992:210), organizational learning is based upon individual learning which is then shared with other members of the organization by capturing the individual learning in organizational policies, standard operating procedures, cultural norms, and organizational stories and ceremonies. According to Senge (1994:49), learning in organizations means the continuous testing of experience, and the transformation of that experience into knowledge which is accessible to the whole organization, and relevant to its core purpose.

Many changes take place within and outside the organization and an organization may need to adapt and/or be able to cope with such changes. In efforts to deal with rapidly changing environments, constantly shifting circumstances, greater demands from those served and growing competition, organizations have attempted to increase their

effectiveness and efficiency by enhancing their organizational learning through the use of such things as teams and collaborative processes (Lick 2006: 90).

Laat and Broer (2004:59) observe that organizations are increasingly confronted with the problem of managing and creating knowledge in order to respond flexibly to changes in their working environment. Organizations realize that sharing and creating knowledge brings a competitive advantage so that they are transforming into learning organizations and expect their workers to become lifelong learners. Regarding lifelong learning, Gamble and Blackwell (2001:143) point out that it is based on the assumption that people will update their knowledge and skills as required, throughout their working lives.

Kotter (1996:183) enumerates mental habits that support lifelong learning as: Risk taking – willingness to push oneself out of comfort zones; humble self-reflection – honest assessment of successes and failures, especially the latter; solicitation of opinions – aggressive collection of information and ideas from others; careful listening – propensity to listen to others; and openness to new ideas - willingness to view life with an open mind.

In the literature, organizational leadership and organizational learning are viewed as closely related. Traditional leadership has been characterized as highly individualistic and asytematic and as making the work and learning of organizational teams difficult (Montes, Moreno and Morales, 2005:1161). The traditional leadership may not inspire learning in an organization. Montes, Moreno and Morales contend that for an organization to become intelligent through learning, it must have support leadership. Having support leadership means having a leader who possesses a series of transformational characteristics, including being a good designer, master, challenger, catalyzer and integrator, as well as having a clear, sustained shared vision. Such a leader must support and encourage innovation, individual initiative, through the construction of competencies centered on learning and open communications.

The extent to which learning in an organization may take place depends on the leadership in the organization (Senge, 1990b:9). In a learning organization, leaders' roles differ dramatically from that of the charismatic decision maker according to

Senge. Leaders are designers, teachers and stewards in learning organizations. These roles of a leader in a learning organization require new skills such as the ability to build shared vision, to bring to the surface and challenge prevailing mental models, and to foster more systematic thinking. It is expected that leaders in learning organizations are responsible for building organizations where people are continually expanding their capabilities to shape their future – meaning leaders must be responsible for learning in organizations. To a large extent, Senge seems to agree with Montes, Moreno and Morales on the role leaders of organizations should play in enhancing organizational learning.

Organizational learning may not be as smooth, obvious and straightforward as it may be made to look in the literature. Some hurdles to organizational learning are identified in the literature. It is widely believed that people learn from experience and organizational members may learn from experiences in their organizations. However, Levinthal and March (1993:97) state that problems of memory, conflict, turnover, and decentralization make it difficult to extract lessons from experience and to retain such lessons. Levinthal and March further say that learning can be self-limiting. The effectiveness of learning in the short-run and in the near neighbourhood of current experience interferes with learning in the long run and at a distance.

Ingram and Baum (1997:75) point out that there are arguments to the effect that learning from own experience can constrain the organization by leading it into competency traps, where it focuses on perfecting routines that are invariably made antiquated by the changing world. They further argue that learning from own experience may lead to efficiency at a set of certain routines, but overall organizational effectiveness can decrease as the organization does not adjust to new demands. They however concede that the relationship between learning from own experience and the organization's capacity to compete in a changing environment remain uncertain.

In comparison, Lessem (1998:323) contends that human beings have the habit of forming working models of the world by creating and manipulating analogies in their minds. Such working models from which human beings learn include metaphors, paradigms, beliefs and viewpoints that provide perspectives and help individuals to

perceive and define their world. From the organizational perspective, organizational members have access to explicit knowledge on rigid codified systems of rules and regulations, policies and procedures, trading accounts and software programmes. When employees learn from such rigid routines, it is as good as learning from their own experience, which may not improve overall performance of an organization. The essence of organizational learning is to improve the overall organizational performance.

Levitt and March (1988:333) identify a number structural problems in organizational learning. The major difficulties include:

- The paucity of experience problem: learning from experience in organizations is compromised by the fact that nature provides inadequate experience relative to the complexities and instabilities of history, particularly when the environment is changing rapidly or involves many dangers or opportunities each of which is very unlikely.
- The redundancy of experience problem: ordinary learning tends to lead to stability in routines, to extinguish the experimentation that is required to make a learning process effective.
- The complexity of experience problem: organizational environments involve complicated casual systems, as well as interactions among learning organizations. The various parts of the learning ecology fit together to produce learning outcomes that are hard to interpret.

Learning in organizations does not just happen. Wiig (1994:236) suggests that learning organizations need to become experts at building and transferring knowledge from its source to points- of- action. To achieve the goal is difficult because many organizations are reluctant to commit sufficient resources to learning how to deal with knowledge management and knowledge analysis. Organizations also need to have people with the necessary technical expertise to conduct all knowledge management-related functions in the process. To have people with the necessary technical expertise to oversee knowledge management-related activities is an extra cost which an organization must meet. Not many organizational top-level managers in Kenya may be prepared to pay extra costs for a service of whose benefits they are not sure.

The experience of this researcher gained by casual observation and interaction, is that in Kenya, most state-owned corporations do not have an enhanced capacity to learn, adapt, and change. According to Wiig (1994:228), an organization learns when it adapts to deal competently with challenges through internal discoveries; knowledge obtained from the outside, or internalized observations of external factors. Wiig further contends that an organization makes its personnel continually capable of dealing intelligently with both routine work and new challenges and adapts its systems, procedures, infrastructure, and organizational arrangements to best deal with both internal and external changes.

Many government-owned organizations in Kenya are not adapting fast enough to the rapid technological changes taking place. As it has been noted, a lot of technological changes have taken place all over the world and many organizations have had to adapt to such changes. In Kenya, the situation is a little different. Not very many government-owned organizations have actually adapted to the technological changes which have taken place and which have been credited for enhancing effectiveness of the adapting organizations.

3.9.1 Competencies and Skills

Sveiby (1997:35) contends that an individual's competence can be regarded as consisting of five mutual dependent elements, namely explicit knowledge, skill, experience, value judgments and social network. Sveiby defines a skill as the art of "knowing how" which involves a practical proficiency – physical and mental – and is acquired mainly through training and practice. It includes knowledge of rules of procedure and communication skills. According to Polanyi (1958:49), the aim of a skilful performance is achieved by the observance of a set of rules which are not known as such to the person following them. There are different ways of acquiring competencies and skills required by knowledge workers. According to Dawson (2005:138), the most effective way to learn a process or a skill for most people is by doing it. Dawson further states that knowledge acquisition is almost always substantially more effective if it is based on practical experience. Corcoran and Jones (1997:31-36) discuss a number skills that they consider important for knowledge leaders and for people who work in knowledge environments.

Organizations may find training of employees to be too costly and resort to hiring new employees who already have certain competencies and skills which may guide them in taking charge of their own learning and training (Allee, 1997:29). In a situation where newly recruited employees are expected to take charge of their training and developing new skills, it is expected that such employees should have certain competencies prior to being hired. Allee gives an example of Xerox which now rates new employees in information technologies on their business skills, technical skills, and leadership skills.

Wiig (1995:207) lists a number of sills and personal characteristics which he thinks are generally important for knowledge workers. Such skills include communication, quick thinking, team participation, ability to prioritize work, ability to synthesize information and ability to listen. Social skills, computer skills and managerial skills are also listed as being important for knowledge workers. Organizations might want to recruit knowledge workers who already some of these skills so that it is easy for newly recruited employees to adjust in knowledge environments.

3.10 Challenges of organizational knowledge management

Numerous challenges face knowledge managers and organizational knowledge management programmes. Some challenges may be easily identified, yet others are not that easily identified. It is the wish of this researcher to identify the challenges which are identified in the available literature. Some challenges of organizational knowledge management may be universal and present in all organizations wherever they are based, yet other challenges may be unique to organizations based in a developing country like Kenya.

Wiig (1994:13) thinks that the central challenge in organizational knowledge management is to create, build, and leverage knowledge on both the personal and organizational level. The other challenge Wiig identifies is that of managing knowledge more broadly which deals with the need to embed the best conceivable knowledge in products and services to make them as valuable as possible to customers. In a survey of American executives, Wiig says that the executives see knowledge held by their employees as their companies' most important asset.

However, the executives said they did not know how to manage this important asset properly. The executives also noted that they considered the issue of handling knowledge to be very abstract and complex.

Measuring the success of knowledge management programmes is still a major challenge to organizations in general and to knowledge managers in particular. There are no generally agreed standard measurement criteria as yet, but in the literature, some criteria are suggested for measuring the success of knowledge management. In a survey Calabrese conducted, some representative qualitative and quantitative responses of measuring the success of knowledge management programmes emerged. The responses include:

- improved quality,
- improved productivity,
- reduced rework,
- faster innovation,
- increased economic performance,
- positive changes in culture and work habits, and
- better product and process integration. (Calabrese, 2004:47).

Some of the responses Calabrese gives as possible measures of knowledge management successes are not easy to obtain. For example, positive changes in culture and work habits may not be easily measured. An organization is made up of many people from different cultural backgrounds. Each individual may come to the organization with his/her culture. It may take time to inculcate organizational culture in every member of an organization.

Wilson (2002) has dismissed the issue of knowledge management as nonsensical. He calls knowledge management another information technology-related fad. Wilson thinks that knowledge cannot be managed because one cannot measure it and what is not measurable is not manageable. Any emerging discipline is subject to debates, criticism and disagreements. Knowledge management is an emerging academic discipline and managerial concept. Given that it has not been around for a long time as an academic discipline and/or as a management concept, it has not quite stamped

its legitimacy in the hearts of scholars and practitioners. It is still unclear to some scholars and practitioners how knowledge may be managed. Many imagine that knowledge is not tangible because it resides in people's minds and it is not possible to manage what is in people's minds. That is why Wilson thinks that there are no standards that knowledge managers can use to measure knowledge and therefore it cannot possibly be managed.

Van Buren (1999:72) contends that what is not measured cannot be managed. He argues that most organizations have only a vague understanding of how much they invest in their intellectual capital and what they get from those investments. His argument is that standard financial accounting systems do not allow for easy estimation of intellectual capital investments, even after such investments have been clearly identified. Van Buren further argues that without methods for measuring intellectual capital, many firms do not realize its full potential. Instead, many firms either under-invest in intellectual capital, or many of their investments are ineffective.

Without recommending, Van Buren argues that efforts to address the measurement challenges surrounding intellectual capital fall into two basic, but overlapping types: measuring stocks of intellectual capital and measuring effectiveness. Measurement of stocks involves enumeration of the intellectual capital of an organization like the number of patents, professional staff with PhD qualifications, Fortune 500 contracts, and so forth. The result of this measurement is an inventory of intangible assets that account mainly for the types and amount of assets an organization has, but little else. Measuring effectiveness is another method of measuring intellectual capital proposed by Van Buren. This kind of measurement goes beyond the value of stocks of intellectual capital to the economic value they produce. The emphasis shifts from intellectual capital to the processes by which it is managed – from stocks to flow. Van Buren says that this form of management looks at the out-put side of the process as well as the input side.

Du Toit (1994:163) argues that it is possible for information service providers to determine the monetary value of information services and charge according to prevailing market value. She says that information and knowledge are seen as factors of production, and they should be treated as commodities with a price tag attached to

them. She warns that determining the price of information is not an easy task even though research has been conducted by economists on the pricing of intangible commodities as information and knowledge. She suggests the following steps that should be taken when developing a price strategy for intangible goods like information and knowledge:

- An analysis of the external and internal marketing environment
- Formulation of price objectives
- Determining of the basic price
- Determination of the final price

Du Toit proposes guidelines to be followed when making decisions of the prices of information and knowledge:

- Price objectives must be clear, executable and consistent
- All those involved should understand the relevant objectives
- Information about customers and competitors should be up-to-date and relevant to the situation
- Information service providers should get assistance from market research consultants
- All human and organizational problem areas should be taken into consideration
- A feed-back mechanism should be provided to help inform future strategy
- The price strategy should conform with the overall strategy of the organization
- Those making price decisions should be innovative and creative

Like any other resource, organizations can acquire knowledge by purchasing it or contracting employees or consultants who possess the knowledge that is required for efficient organizational operations. An organization can also commission researchers to conduct research in exchange for the rights to patent the research findings and to exclusively use the results for commercial purposes. Once an organization has acquired knowledge, it should be processed, preserved and made available for sharing in the organization and beyond. All these are managerial processes which justify the management of knowledge.

Knowledge may not be viewed as other (tangible) resources, but it should be realised that the intent of knowledge management is not always to make knowledge visible or available to everybody and at every point. An organization may discover that it is to its best interests to keep its knowledge tacit, hidden, hard to copy and difficult if not impossible to transfer. Competitive advantage is as a result of knowledge that is extremely difficult if not impossible to replicate.

As an emerging discipline and managerial concept, knowledge management may take time before it authoritatively claims its place among academic disciplines. It may also take time before knowledge management is fully accepted as a managerial concept that all modern organizations should embrace. Organizational managers in Kenya and elsewhere should be patient, flexible and open-minded about the concept of knowledge management.

It may appear that it is not possible to formally assess knowledge management because of the nature of knowledge. In order to do a formal assessment, it is first important to have a clear understanding of what is being assessed and of the metrics involved. The notion of assessing knowledge management is currently inadequately understood. Some assessment methods have been suggested, but it is still felt in some quarters that the methods are not practical as the same cannot be used to measure the value of other resources. If it is agreed that knowledge management is still at its nascent stages, then much work needs to be done to formalize the frameworks, taxonomies, and procedures that are necessary to serve practitioners and which are critical to solidify its position as a unique and valuable discipline (Grossman, 2006:242). The maxim of "you can't manage what you can't measure" seems to underlie much current management thinking. A lot of knowledge is mainly tacit and residing in the minds of the people who have it. Some measurement criteria for knowledge have been suggested, but they have not been quite universally agreed on as being standard. The measurement criteria which have already been proposed and have not received universal acclaim should continue to be refined while knowledge management scholars and practitioners continue to devise other criteria which may be more acceptable.

Writing in 2005, Rao as cited by Grossman (2006:242) says that whatever the methods used, there are eleven important beneficial reasons for formally assessing knowledge management. The reasons are:

- Identify and/or map intangible assets;
- Recognize the knowledge flow patterns within the organization;
- Prioritize the critical knowledge issues;
- Accelerate learning patterns within the organization;
- Identify and diffuse best practices;
- Understand how knowledge creates interrelationships;
- Understand organizational social networks and identify change agents;
- Increase innovation;
- Increase collaborative activities and knowledge sharing culture as a result of increased awareness of the benefits knowledge management; and
- Create performance-oriented culture.

Grossman (2006:242) contends that in order to do an assessment of knowledge management, it is first necessary to have a clear understanding of what is being measured and of the metrics involved. It is however not easy to achieve this as the formal body of knowledge management has yet to coalesce. Grossman thinks that measurement is perhaps the least developed aspect of knowledge management because of the inherent difficulty of measuring something that cannot be seen or touched. He recommends that if the discipline of knowledge management is to survive and make a long–lasting contribution, it will need to achieve greater levels of standardization and better metrics to assess its effectiveness.

Gupta, Lyer and Aronson (2000:20) also identify lack of criteria for measuring the success of knowledge management programmes in organizations as one major challenge to knowledge management. They say that traditional ways of financial measurements fall short, as they do not consider intellectual capital as an asset. They therefore suggest that there is need to develop accounting procedures for valuing intangible organizational assets as well as incorporating models of intellectual capital that in some way quantify the speed of innovation and the development of core competencies.

Some of the ways suggested for measuring the success of knowledge management in organizations include: the number of patents, trademarks, copyrights and trade secrets an organization holds. Other possible measures suggested are: customer satisfaction, financial bottom line (stock prices, dividends, and net present value), effectiveness of business processes, ability to sustain innovation and changes and improvements through organizational learning, and quantifying critical success factors.

A knowledge-sharing culture is not easy to establish. Teo (2005:154) thinks that people and culture are harder aspects to resolve than technical challenges. Hansen, Nohria and Tierney (1999:113) consider establishing a knowledge-friendly culture in an organization to be a major organizational knowledge management challenge, yet one of the most important factors for a project's success. They say that characteristics of a knowledge-friendly culture include:

- People having intellectual curiosity;
- People having a positive orientation to knowledge;
- Placing high value on learning both on and off the job;
- People are not inhibited in sharing knowledge and do not fear it will cost them their jobs; and
- Expertise and rapid innovation supersede hierarchy.

These characteristics of a knowledge-friendly culture may mean changing people's behaviour and culture in an organization so that they can generate, share and transfer knowledge without feeling that they may be losing anything or feel threatened in any way. This may be a major challenge that knowledge managers in Kenyan organizations and elsewhere may face.

Teo (2005:154) further identifies other factors which contribute to the success of organizational knowledge management as top management support and commitment, choosing project leader and team, creating a knowledge-sharing and tolerant culture and providing recognition, incentive, and reward. Top management and commitment for any project in an organization is a prerequisite for the project's success. Choosing a knowledge management project leader and team members can also be tricky where people are unwilling and unskilled in many aspects of knowledge management.

Recognition, incentive and reward systems need to be established but is also not an easy task. In an environment where organizational knowledge management projects are not commonplace, there would normally be no precedent of establishing a system for recognition, incentives and rewards for top knowledge contributors.

Trust might sound like a minor concept, but it is viewed as a major challenge in knowledge management (Nonaka and Takeuchi, 1995:222; Ellis, 2005:18; Ribiere, 2005:103). Ellis for example thinks that the root of the greatest obstacle to progress in developing the knowledge management agenda in an organization lies in the absence of a culture of trust. He adds that a key element to knowledge management is getting employees of an organization to share what they uniquely know with fellow colleagues so that they can benefit from knowing new "stuff". Before sharing their unique knowledge, employees need to be sure that the consequences will at least be neutral to them and preferably positive. In the event an employee feels that once shared, his or her knowledge based power will be gone, and that power was all that was keeping him in employment, then the incentive to share knowledge is understandably very slim.

Trust is not something that may just happen in an organization. It must be cultivated in employees of an organization. Cultivating trust in employees so that they may generate knowledge jointly and share any new knowledge is a challenge that every knowledge manager faces. Ribiere (2005:103) asserts that interpersonal trust is crucial for establishing a knowledge-centred culture. Other benefits that trust provides include stimulation of innovation, greater emotional stability, facilitation of acceptance and openness of expression, and encouragement of risk taking.

Tacit knowledge may be very important to an organization, yet it is very difficult to acquire, map and capture (Shadbolt and Milton, 1999:312; Van Zolingen, Streumer and Stooker, 2001:177). Tacit knowledge is personal knowledge and organizations lose it when employees leave. It is also difficult to lay down this implicit knowledge in knowledge management systems. Van Zolingen, Streumer and Stooker suggest different ways of confronting this challenge. Good facilitation of knowledge management increases the chances of good employees staying. A good knowledge

management system also increases the pleasure in one's work. Such a system gets rid of a number of frustrations.

Gupta, Lyer and Aronson (2000:19) look at change management as one major challenge to a chief information officer or a chief knowledge manager. They say that effective knowledge-sharing and learning require cultural change within an organization, new management practices, senior management commitment and technological support. It is a major challenge to convince, coerce, direct or otherwise get people within an organization to share information.

Shadbolt and Milton (1999:312) argue that challenges faced in knowledge management are many and varied. They do not think that such challenges may be made any easier by technology. The three major challenges that they identify as those which repeatedly crop up in the knowledge management processes are:

- Organizations contain such a vast amount of knowledge that mapping all of it would be both impossible and a waste of time.
- Tacit knowledge is vital to organizations, yet it is very difficult to acquire and map.
- Ordinary language is the main form of communication, yet it is full of jargon, assumptions and ambiguities that people often fail to understand what others are trying to say.

Explaining why knowledge management is so difficult, Birkinshaw (2000:11) states that the key problem is that knowledge management is so central to the make-up of the firm that it cannot be separated out and acted upon in a way that is possible with a single process of management. Birkinshaw (2000:15) gives a number of reasons why she thinks many knowledge management programmes cannot deliver. The reasons include:

- Firms not sufficiently recognizing they are already managing knowledge.
- Information technology is often regarded as a substitute for social interaction.
- Knowledge management typically focuses too much on recycling existing knowledge, rather than generating new knowledge.

- Most knowledge management techniques look like traditional management tools.

There may not be easy quick fixes for an organization that may be considering a knowledge management programme, but Birkinshaw (2000:17) suggests five basic guidelines that may make it easier to think through how to structure knowledge management efforts. The guidelines are:

- A knowledge management programme should map the knowledge flows in the organization.
- It is important to map the stocks of knowledge and use them to encourage sharing of best practices.
- A Knowledge management programme should focus efforts on mission-critical rather than on nice-to-have knowledge.
- The visibility of knowledge management activities should be raised.
- Incentives should be used to institutionalize new knowledge sharing activities.

3.10.1 Impediments to Promoting Access to Knowledge

All challenges to knowledge management can be looked upon as impediments to promoting access to knowledge. Any condition that may prevent the free flow of knowledge in an organization may be seen as an impediment to promoting access to knowledge. Some impediments are obvious and easily identifiable while others are not obvious or easily identifiable. Some organizations impose no restrictions whatsoever on who can access what knowledge and information, whereas others protect specific parts of their knowledge and information, restricting access to selected people and groups only (Riege, 2005:19). Riege names three dozen impediments to sharing knowledge. All the three dozen impediments revolve around individual employees, organizations' systems and processes, and integrated technologies. Szulanski (1996:28) contends that researchers in strategic management have examined impediments to the transfer of best practices between organizations, but impediments to transfer capabilities within organizations have received little attention. Szulanski further argues that contrary to conventional wisdom that places primary blame on motivational factors, the major impediments to internal knowledge transfer are shown to be knowledge-related factors.

3.11 The Literature Reviewed

There is no doubt that there is an enormous interest in knowledge management as a managerial concept and as an academic discipline. It emerges that knowledge management and intellectual capital have laid the groundwork for new knowledge-based concepts, theories and practices of management. Many books and journal articles have been written on the subject of knowledge management by both practitising managers and academicians of leading business schools and other academic disciplines like management information systems, computer science, information technology, sociology, psychology and engineering. In the estimation of Gordon and Grant (2004:27), it shows that, to date, the literature remains dominated by technical disciplines, notably information technology.

Much of the written literature on knowledge management gives a picture of practices, recipes, and tools associated with knowledge management as being very mechanistic (Scarborough and Swan, 2001:4). Scarborough and Swan view the available literature on knowledge management as glossing over important issues such as tacit or situated knowledge. Scarborough and Swan view this oversight as a limitation which has to do with the commercial exploitation of the idea of knowledge management. They further argue that consultants have been very active in marketing knowledge management as an attempt to harness and exploit the "intellectual capital" of the organization – a notion that sits comfortably with the recognition of knowledge as the primary source of productivity, innovation, and wealth creation in globalized, post-industrial economies.

From the literature, it is apparent that efforts to promote knowledge management more often than not involve a repackaging of tools and practices which have been developed in a different context. The tools and practices which have been developed lean more towards achieving and promoting commercial exploitation of knowledge than advancing the understanding of knowledge. As a consequence, much of the existing literature has a heavy bias towards technological solutions in solving organizational knowledge management problems.

The available literature makes one have the feeling that knowledge management brings forth a new type of organization. It is a new type of organization characterized by flatter structures, less bureaucracy, and having workers who must not always work from the organizational offices. Advances in information and communication technologies have been credited in the literature for playing a major role in making this possible. The technological and organizational changes are presented in the literature as closely related, with new organizational forms both embracing and advancing the use of new technological tools such as groupware and intranet applications. In this context, knowledge management can be viewed as a response to both the problems and opportunities availed by new methods of organizing business.

In the available knowledge management literature, there has developed a view that knowledge is an organizational resource at par with other traditional resources or as the most important of all the resources. Amidon puts it thus:

> *What has emerged in the international community of theorists and practitioners dedicated to shifting the management orientation from one of accounting and financial measures of tangible assets to one of measuring and monitoring the intangible assets relevant is the knowledge economy (Amidon, 1998:47).*

Whereas the notion of "asset" may mean something useful and important to the organization, some writers have decided to give knowledge more substance by defining it as "intellectual capital" or an "intangible resource." This is how Roos and von Krogh put it:

> *Gone are the days when companies were seen only as physical entities that converted raw materials into tangible products. Today, physical capital is of less relative importance for creating and sustaining competitive advantage than intellectual capital. For many companies, the market value of intellectual capital is now too large to be categorized as goodwill. The emerging recognition of knowledge and intellectual capital has laid the groundwork for new, knowledge-based concepts, theories and practices of knowledge management (Roos and von Krogh, 1996:333).*

The issue of a "learning organization" is closely linked to knowledge management in the literature. It may be interpreted that knowledge management is an offshoot of the concept of a learning organization meant to add value to organizational learning ideas. It may even appear that knowledge management is a new development which may stand on its own, but is a divergence from the literature on learning organization. However, knowledge management should be seen as a new management fashion in its own right which has a new focus on integrating tools, systems, people and processes.

Knowledge management is presented in the literature to be understood as a rhetoric which has all the right ingredients for organizational management. Its presentation gives a sense of a radical departure from existing managerial ideas which have dominated management literature for many years. Organizational managers are confronted with new ideas so that they do not dismiss knowledge management as a fad or "nothing new" to worry about. Knowledge management is also represented in the literature as a managerial fashion that every manager must adapt so as to avoid being swept aside by the looming environmental changes of the knowledge society.

The literature links knowledge management to the highly valued management outcomes such as efficiency, effectiveness, innovation, management control, knowledge sharing and organizational learning. Numerous examples are given of outstanding organizations which are organizations that have achieved tremendous positive results because of embracing knowledge management practices. Organizations which have adopted knowledge management seem to achieve results they could only imagine before adopting knowledge management. Such organizations have achieved these results regardless of the difficult circumstances in which they operate. Knowledge management is presented in the literature in such a way that managers of those organizations which have not adopted knowledge management might think that there is something important they are missing because of lack of knowledge management programmes in their organizations. However, there is no evidence in the literature showing that organizations fail to achieve their objectives because of lack of knowledge management programmes.

In the literature, the issue of whether knowledge management is a new management fashion is evident. The fashion metaphor seems to have been responsible for a number of aspects of knowledge management diffusion. Organizational managers may feel compelled to adopt knowledge management because it is the new fashion of management. Abrahamson (1996:254) observes that theories of fashion in aesthetic forms are used unmodified to explain fashions in technical forms, such as management techniques. Abrahamson contends that these theories of fashion suggest that organizational gaps opened by technical and economic environmental changes do not shape the demand for management fashions; "sociopsychological" forces do instead. Abrahamson suggests that "sociopsychological" forces shape the demand for

management fashions, but that theses forces compete with technical and economic forces to shape demand for management fashions. "Sociopsychological" forces bring in such managerial motivations as the desire to be individualistic and novel; frustrations and despair when things are not going right, and the search for "quasi-magical" solutions; and the search for status. Abrahamson (1996:255) further argues that the popular management press attributes interest in management fashions to other "sociopsychological" forces such as childlike excitement, mass conformity and even something akin to manias or episodes of mass hysteria.

Abrahamson's theory of management fashions postulates that both exogenous and endogenous forces shape management fashions. Exogenous forces originate from outside management knowledge markets and are assumed to create or destroy management niches or trigger demand for new types of techniques within an existing niche. Endogenous forces, on the other hand, refers to influences that shape management culture independent of exogenous forces, such as the tendency for an organization to seek newer techniques whether out of a desire to differentiate itself from others or simply in search of novelty.

"Sociopsychological" forces make new management fashions appear like rational (efficient means to important ends) and progressive (new as well as improved relative to older management techniques). Practising managers in organizations may turn to fashion setters to find out about rational and progressive management techniques. The forces may influence practicing managers to want to adopt management fashions in a desire to learn about management techniques that would help them respond to organizational performance gaps opened up by real technical and economic environmental changes. Consequently, management fashion setting can serve as a technical learning process for many practicing managers. Management fashion setters produce the collective beliefs that certain management techniques are both innovations and improvements relative to the state of art.

Abrahamson does not appear to be equating the idea of management fashions with aesthetic fashions. Management fashions can only gain acceptance if they can demonstrate a claim to being fundamental in their application and timeless in their scope and if they claim to offer solutions to real or perceived efficiency gaps. For that

matter, it has been widely argued in the literature that knowledge management is more than a new fad or a new fashion:

> *To a growing number of companies, knowledge management is more than just a buzzword or a sales pitch; it is an approach to adding or creating value by more actively leveraging the know-how, experience, and judgment resident within and, in many cases, outside of an organization (Ruggles, 1998: 80).*

Sturdy, as cited by Scarbrough and Swan (2001:9), avers that while some of these metaphorical flows are already recognized in the existing literature, a second and perhaps more critical limitation of the fashion perspective has to do with its emphasis on the diffusion episode of knowledge production. Existing accounts of management fashions focus mostly on the diffusion process and on the actions of fashion-setters in the development of new concepts to users. This can only be seen as a partial account of knowledge production for at least two major reasons. First, there is a tendency to treat the adoption of new ideas as an episode that is somehow discrete from their implementation. Secondly, it treats users as rather passive recipients of ideas invented elsewhere. Unlike changes in the fashions or styles of clothes and cosmetics, change in organizations is a rather complex and management intensive processes with many consequences being far-reaching and long term.

In the literature, specialists and practitioners of information systems are portrayed as having enthusiastically embraced knowledge management. Information systems specialists and practitioners have focused on developing tools and systems for knowledge management. The concept of knowledge management then has come in handy for information systems specialists and practitioners to impress upon organizational management the importance of organizational change programmes aimed at using information technology to capture, process, store and transfer knowledge.

The literature shows that personnel or human resources management specialists have also embraced knowledge management. The human resource management specialists are reconstructing knowledge management as the creation of intellectual capital through the development of employees and the management of organizational culture.

A few non-governmental organizations in Kenya are practising knowledge management in one way or the other. This researcher observes that government departments and government-owned organizations in Kenya are waking up to the fact that knowledge is now an important strategic resource whose systematic management should be embraced.

From the literature review conducted, the researcher observed that knowledge management is real. Some scholars and practitioners of knowledge management are optimistic that knowledge management is real and here to stay. The researcher also observed that knowledge management is rapidly being adopted by university academic departments as an academic discipline. Scholars of knowledge management have emerged and their works are widely cited in the literature. Such scholars include Liebowitz, Prusak, Davenport, Nonaka, Takeuchi, Levitt, March and Drucker.

It is not indicated in the literature that standards of measurement for knowledge management are in existence. However, it is a matter of time before standards are developed that managers can use to measure the performance of knowledge management programmes. Some skeptics are taking time to see beyond the maxim of "what cannot be measured can't be managed." Practising managers need to be open-minded, flexible and patient. Some management concepts have in the past been dismissed as impractical, but later they are adapted and fully integrated into accepted management practices. A number of organizations are already practicing knowledge management and as time goes by, it is the opinion of this researcher that it will dawn on critics that knowledge is manageable.

3.12 Summary

This chapter has discussed issues in knowledge management in the literature available to the researcher. The researcher searched the literature under many varying themes and sub-themes. The themes and sub-themes included but not limited to: knowledge, knowledge management, explicit knowledge, tacit knowledge, intellectual capital, information technology, organizational learning, organizational culture, organizational development, virtual teams, virtual organizations, knowledge creation,

collaboration, communities of practice, knowledge sharing, knowledge economy and artificial intelligence.

In the literature review conducted, issues in line with the objectives which guide this study are extensively covered. The issues covered in the literature, and which guide the study include:

- The extent to which knowledge may be managed as an organizational resource
- Challenges and problems of knowledge management
- Tools of managing knowledge
- Practices of knowledge management
- Processes of knowledge management
- The role of information and communication technologies in knowledge management
- Organizational learning as it relates to acquiring new skills and capabilities by members of an organization
- Knowledge management enabling environment

CHAPTER FOUR
RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

This study was conceived with the aim of investigating the practices, procedures and challenges of knowledge management in government-owned organizations (parastatals) in Kenya. The specific objectives of the study were to:

- assess the extent to which government-owned organizations in Kenya practice knowledge management,
- find out the extent to which learning takes place in government-owned organizations in Kenya,
- establish how government-owned organizations in Kenya determine the knowledge they require for their operations,
- assess the kind of tools for managing knowledge in the organizations,
- find out whether and the extent to which individual organizational members in the government-owned organizations in Kenya are motivated to contribute to knowledge creation and sharing, and
- discover the major challenges and problems the organizations face in managing knowledge.

This study derives its significance from the continuous burgeoning importance of knowledge as a strategic resource that makes the difference between success and failure of profit and non-profit organizations as well as institutions, countries and regions. In order to assess the practices, procedures and challenges of knowledge management in government-owned organizations in Kenya, this study explored, analyzed and described how knowledge is managed, procedures employed and the challenges which relate to knowledge management in the Kenyan government-owned organizations.

The researcher employed two major approaches in this study. The first was an overview of the literature covering aspects of knowledge management that were

pertinent to the study (cf. chapter 3). The literature review helped to clarify concepts and further provided the basis for the theoretical framework for this study (cf. chapter 2). The second approach was an empirical study conducted at selected Kenyan government-owned research organizations to assess the state of procedures and practices of knowledge management and the challenges that these organizations face in managing knowledge effectively and efficiently.

4.2 Research Design, Methodology and Process

Before examining various aspects relating to research methodology in greater detail, the researcher will first outline the overall decisions taken during the research process. A number of authors have indicated that it is important to document the empirical process followed as carefully as possible to ensure later replication and verification.

Mouton and Marais (1990:24) identify the following "five typical" distinguishable stages which an investigator should follow in an empirical research project:

- Selecting a research topic
- Formulating the research problem
- Conceptualization and operationalization
- Data collection
- Analysis and interpretation of the data.

To these five stages of the research process, one would add a sixth one, the presentation of the final research report.

For this purpose, a flowchart of the procedures and steps followed in this study is presented as Figure 4.1 below. Although the processes are depicted sequentially, this by no means suggests that the iterative, interactive nature and complexities of the research process can or in fact was reduced to a simplistic step-by-step procedure.

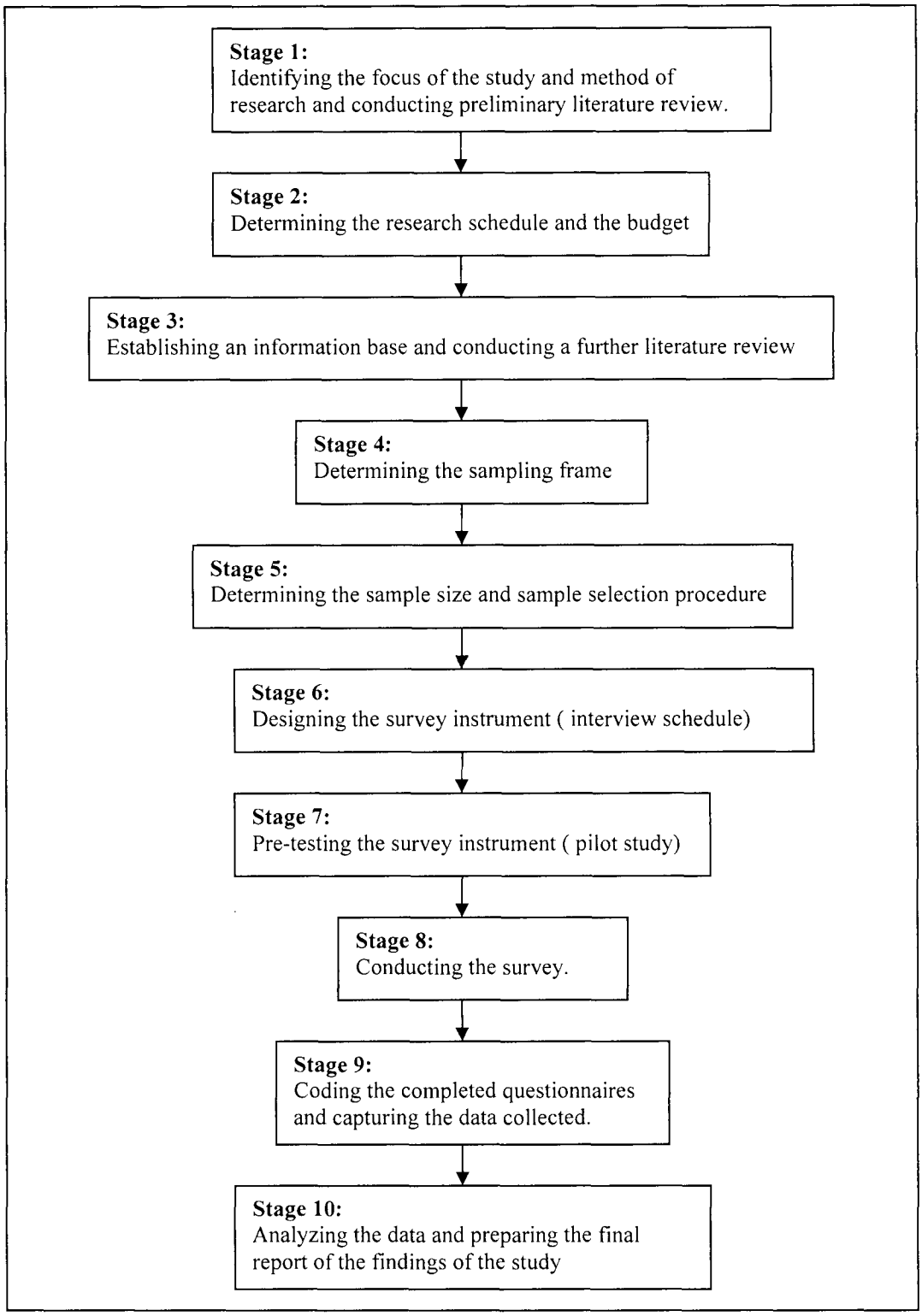

Figure 4-1: Stages of the Research Process. (Adapted from Rea and Parker, 2005:23)

4.2.1 Qualitative versus Quantitative Research Processes

The word "qualitative" implies an emphasis on processes and meanings that are not rigorously examined or measured (if measured at all), in terms of quantity, amount,

intensity, or frequency (Denzin and Lincoln, 1998:8). Denzin and Lincoln further argue that qualitative researchers stress the socially constructed nature of reality, the intimate relationship between the researcher and what is studied and the situational constraints that shape inquiry. Such researchers emphasize the value-laden nature of inquiry. They seek answers to questions that stress how social experience is created and given meaning. In contrast, quantitative studies emphasize the measurement and analysis of causal relationships between variables, not processes. Inquiry is purported to be within a value–free framework.

Myers and Avision (2002:4) trace the origin of quantitative method to the natural sciences. They argue that quantitative research methods were originally developed in the natural sciences to study natural phenomena. In quantitative research, the research results are quantifiable to a known degree of accuracy because the data were derived from a representative sample whereas in qualitative research, information may be provided without that known degree of accuracy because representativeness is not ensured (Rea and Parker, 2005:73). In a quantitative study, the focus is on control and on how variables are related (Henning, Van Rensburg and Smit, 2004:3). Hening, Van Rensburg and Smit further argue that in a quantitative study, the respondents or research subjects are usually not free to express data that cannot be captured by predetermined instruments. In a qualitative study, on the other hand, variables are usually not controlled and the aim is for depth rather than "quantity of understanding." Grady and Wallston (1998:10) suggest that applied research generally requires a flexible, non-sequential approach.

Babbie and Mouton (2001:49-54) in turn state that quantitative studies place a particular emphasis on the quantification of constructs, variables play a central role in describing and analyzing human behaviour, and sources of error are rigorously controlled. In their view, the qualitative paradigm on the other hand, is characterized by an emphasis on the study of human action from the insider's perspective where description and understanding play a more important role than the explanation and prediction of human behaviour. The emphasis is to "stay close" to the research subject and this would thus imply the use of data collection methods such as unstructured interviewing, participant observation and the examination of personal documents.

Both research approaches, however, have their advantages and drawbacks and researchers should thus be aware of the most suitable approach to adopt for a specific study. There is furthermore, currently greater convergence between the two approaches and they are often used in combination to complement each other. Thus, both modes could under certain circumstances be adopted in one study and used in a complementary way to obtain the clearest understanding of the phenomena and behaviour under investigation (cf. for example the views expressed by Babbie and Mouton, 2001).

Triangulation is the term used to describe techniques which attempt to obtain a rounded picture of a particular phenomenon by studying it from a multiple viewpoints, of necessity drawing on different data sources, invariably involving the use of a variety of different research methods (Devine and Heath, 1999:48). It can help qualitative researchers shift their emerging understandings better to describe what they are studying and to be more certain that they have caught some of its essence. In their view, Miller and Fredricks (1994:28) consider triangulation to be a series of strategies directed toward both the generation and clarification of ideas. The general idea of triangulation is that the use of more than one instrument may increase the reliability and perhaps validity of the findings of a study.

For the reasons outlined above and to obtain a true and in-depth picture of the complexities of mostly intangible issues that relate to knowledge management, the researcher decided to adopt a triangulated approach. Thus, while the study was mostly imbedded in the qualitative domain, certain aspects of a more quantitative nature were also incorporated where appropriate. This study further also used more than one technique for collecting data and these included face-to-face interviews that were supplemented by content analysis and observation.

4.2.2 Research Design and Research Questions

According to Mouton and Marais (1990:33), the aim of a research design is to plan and structure a given research project in such a manner that the eventual validity of the research findings is maximized. By developing a well structured research design, the researcher thus ensures that the evidence obtained resolves the research problem

as unambiguously as possible (De Vaus, 2001:9). Obtaining relevant evidence entails specifying the type of evidence needed to answer the research questions, to test a theory of hypotheses, to evaluate a programme or to accurately describe some phenomenon. A well constituted research design thus helps a researcher to determine the kind of evidence he/she needs to successfully conclude a research project. It further formalizes the research process and methods to be used in the study and indicates the "set of decisions regarding what topic is to be studied among what population with what research methods" (Babbie, 1999:104).

It is the view of this researcher that a fundamental component of any research design is the hypotheses or research questions that should serve as the framework for the research project. Locke, Silverman and Spirduso (2004:29) further suggest that the process of research, i.e. its operationalization, begins when a researcher formulates carefully defined research questions of hypotheses that clearly conceptualise the problem under investigation and then designs a systematic way to collect information that might provide an answer.

While hypotheses are generally formulated to serve as the organising framework for research projects within the quantitative domain, it is recommended to rather use research questions in qualitative studies as in such studies; it is not easy to predict answers (Punch, 1998:40). Since this research project was mostly embedded in a qualitative research paradigm, research questions rather than formal hypotheses were thus formulated to serve as the framework for the empirical study. The research questions that formed the framework for this thesis evolved from the objectives of the study and the development of the theoretical framework for the study (cf. Chapters 2 and 3).

The principle research question that formed the basis for this study was:
To what extent and how do government-owned organizations in Kenya practice and apply knowledge management principles?

This question was further enhanced by the following subsidiary questions:

- How do government-owned organizations in Kenya determine the knowledge they require?

- How do government-owned organizations in Kenya determine the formats in which the knowledge required should be delivered?
- How do the organizations determine when the knowledge they require should be made available?
- What kinds of tools are used for managing organizational knowledge?
- To what extent does organizational learning take place in Kenyan government-owned organizations?
- What are the major managerial challenges and problems that government-owned organizations in Kenya face in managing knowledge and how may such challenges and problems be overcome?

4.2.3 Research Method

Having clarified the overall design decisions that should be taken, the researcher examined all possible research methods that would satisfy the requirements of this research project. A research method is a strategy of inquiry which moves from underlying philosophical assumptions to research design and data collection (Myers and Avison, 2002:7). Myers and Avison further argue that the choice of research method influences the way in which the researcher collects data. Specific research methods also imply different skills, assumptions and practices. The major purpose of a research project is to discover new knowledge and this involves the discovery of new facts, their correct interpretation and practical application.

Taking into account the interdisciplinary nature of knowledge management, the researcher eventually decided to concentrate on surveys, one of the most well known social science research methods. Generally speaking, surveys provide an overall perspective of a field and although they are usually concerned with populations or large groups, they may also be used to study small populations. This method provides a systematic approach to study the relative incidence, distribution and interrelations of a number of variables that are not manipulated, but which occur in a natural setting. Data that can be easily analysed are generally generated by surveys. The unit of analysis, or things being studied, usually involves individual people, but it may also be extended to include groups of people, institutions and even inanimate objects. Sampling techniques are usually applied to draw as representative as possible sub-set

of the population and systematic data collecting techniques are used to obtain the data. This usually involves some or other questioning technique (e.g. mailed questionnaires or interviews), but observation methods as well as the systematic analysis of documentary material may also be used to analyse the data. Surveys can belong to exploratory, or descriptive or analytical type of research design and they are thus applicable to either qualitative or quantitative approaches. Most surveys are based on cross-sectional designs, i.e. they take place only once and within a particular time span. Such a survey would reflect the characteristics, behaviour, opinions, etc. prevalent at that particular time.

Problems encountered with this method relate to the fact that although surveys provide an effective method to examine the products of social activities, they are not the ideal method to use to examine the activities themselves (Bailey, 1994:288). There is further considerable dependency on a respondent's understanding of the situation as well as possible subjective bias that both the investigator and respondent might introduce. These problems however, are encountered in most social science research methods, and the best means of resolving them are to be fully aware of their existence and to offset the adverse effects. Respondents should, furthermore be encouraged to fully participate and to identify themselves with the value of the research project.

4.3 Variables

A variable is a concept which takes on two or more degrees (Philips, 1971:53). Gender for example takes on the values of female and male and on that basis may be called a variable. To do any research in social relations, one should be able to measure the constructs he/she wishes to measure (Kidder, 1981:122). Constructs are the abstractions that investigators in the social sciences discuss in their theories and Wiig (1993:4-5) is of the opinion that through knowledge management, organizational managers try to ascertain that their organizations are intelligent-acting.

Kidder (1981:22) argues that no single variable can serve as a complete representation of a construct. Nevertheless, at least one variable must be identified if a construct is to be measured. Variables themselves require further specification in the form of an operational definition or set of instructions for translating the variables into a set of

categories. For example, encouraging knowledge sharing in an organization can be measured in a number of ways and an operational definition is required to specify whether or not to include training, rewards, knowledge management policy, the organizational environment, management structure, available technology etc.

In this study, the variables investigated included:

- The various constructs that relate to the practices of knowledge management.
- Procedures of knowledge management.
- Tools of knowledge management.
- The state of information and communication technologies.
- Organizational learning, and
- Challenges of knowledge management.

4.4 Data Collection Techniques

There are many methods that can be used to collect data for a study and some researchers contend that multiple methods should be employed to collect data. Whatever research strategy is chosen, there are only a few basic ways in which to obtain data (Golden, 1976:22). Golden elaborates that the most widely used techniques involve observing behaviour, asking questions and analysing archival material and documents

4.4.1 Observation

The researcher made use of observation as a minor data collecting technique. Observation has both disadvantages and advantages, which have been identified by Silverman (1993:43) and Minztberg (1973: 226). The disadvantages include the possibility of the researcher being excluded from some confidential work, the observer can be biased, and the researcher must be present all the time. Burns (2000:412) identifies limitations of observation as a data collection technique. Among the limitations are:

- It is often impossible to predict exactly when a researcher should be present to observe spontaneous events.
- It may be difficult to identify exactly what should be observed

- It is not very clear how observation should be recorded
- It is not easy to establish the kind of relationship that should exist between the observer and the observed.

The advantages include the inductive nature of the technique, the researcher has the opportunity to probe deeply into the work he/she observes, and it affords the researcher an opportunity to shift focus as interesting new data becomes available, it is a flexible technique and it can produce invaluable findings

Burns (2000:410) is of the opinion that many fieldworkers complement data from participant observation with information taken from interviews. Burns observes that in the course of an interview, the researcher can, among other things, investigate in more detail an informant's "typifications" of persons and events. Burns outlines the advantages of observation as:

- Observational techniques make it possible to record behaviour as it occurs
- It is assumed that behaviour is purposive and expressive of deeper values and beliefs
- Observational techniques yield data that pertain directly to typical behavioural situations – assuming that they are applied to such situations
- Some investigations deal with subjects who are not able to give verbal reports of either their behaviour or their feelings, because they cannot speak. Such investigations find observation to be a good technique of collecting data.
- It is a data collection technique that is independent of the subject's willingness to report
- Observation is less demanding of active cooperation and participation on the part of the subjects.

This researcher unobtrusively observed the knowledge behaviour of the respondents while interviewing them.

4.4.2 Document Analysis

Documents refer to any written material that may be used as a source of information about human behaviour (Philips, 1971:147). Philips cautions that the recordings of such material must not have been the result of any special effort on the part of the investigator. Document analysis which is also referred to as content analysis incorporates the conduct of a literature review, i.e. where all relevant literature available on several aspects of a particular problem being investigated is scanned.

As a technique of collecting data, document analysis has disadvantages and advantages (Robson, 1993:280; Babbie, 1999:295-296). Disadvantages of the technique include the possibility that the documents available may be limited or partial and that the documents have been written for some other purpose than the intended research project and it is difficult to authenticate accuracy. Babbie adds that the technique is limited to the examination of recorded communications and that it has a possible low degree of validity. On the other hand however, the concreteness of materials studied in content analysis strengthens the likelihood of validity.

Advantages of the technique are that a researcher can observe without being observed; the data are in permanent form and hence can be subject to re-analysis (of allowing, reliability checks and replication of studies. Babbie also contends that the relative low cost of the technique in terms of time and money is advantageous and it also permits a researcher to study processes occurring over long periods of time. From the foregoing discussion of the documentary analysis technique, it is clear that the technique has more advantages than disadvantages, and hence, the reason for selecting the technique.

Document analysis for this study was based on an examination of the literature on knowledge management, documents such as mission statements, staff listings, annual reports, and organizational structures etc. and documents that provided historical backgrounds of the selected organizations

4.4.3 Interviews

The researcher selected direct interviews with the respondents as the main technique to collect data for this study. Interview techniques have the advantage of yielding high response rates and they have a greater capacity with correction of inherent misunderstandings. Interviews are also credited for the chance they may afford the researcher to probe and follow-up on any interesting issues that may crop up in the course of the interview. The researcher elected to use face-to-face interviews as a technique of collecting data for this study because of the inherent advantages outlined below:

a) The flexibility of the situation.

b) It is particularly suitable for collecting information from respondents who are considered not to be very knowledgeable in the subject of knowledge management.

c) The richness of the data collected in a qualitative study.

d) Expected high response rates: The researcher has had past experience in soliciting responses from respondents in government-owned organizations in Kenya. Many respondents do not respond to questionnaires mailed to them via postal services and/or e-mail. Limited access to the Internet is a further problem in most government-owned organizations in Kenya.

e) The researcher had reason to believe that in the course of the face-to-face interviews, he could observe the non-verbal behaviour of the respondents, which could afford him the opportunity to follow-up observed clues and break away from the interview schedule when appropriate.

f) The researcher was convinced that the face-to-face interviews could allow him to take control of the interview environment and give the interview direction.

g) Some respondents are known to shift the responsibility of answering questions when they receive questionnaires via post and the researcher did not want this to happen. In the face-to-face situation, the respondent alone has to answer all the questions.

h) The interviewer has the opportunity to make sure that all the questions are answered.

i) It provides an opportunity to establish rapport with the subject, stimulate the trust and cooperation needed to probe sensitive areas and it allows the subjects an opportunity to ask for interpretation of questions which are not clear.

Bailey (1982-183) identifies some of the disadvantages of face-to-face interviews as costly, time-consuming, and the possible intrusion of both interviewer and respondent bias. However, the foregoing advantages were found to outweigh the disadvantages and provided sufficient reason to adopt this method.

4.4.4 Interview Schedule Construction

Informed by the works of Botha and Fouche (2002:13-19), and Alavi and Leidner (1999) as well as the findings of the literature review, an interview schedule was prepared for use during the interviews. In their study, Botha and Fouche had as their major objective the description of prevalent knowledge management practices, the identification patterns and trends, and the development of knowledge management benchmarking and strategic management tools for the business sector in South Africa. Alavi and Leidner's (1999) work derives from studies conducted in the USA and focused on the current practices, outcomes and nature of knowledge management systems.

The researcher mostly utilized closed-ended and/or fixed questions as they enabled him to present alternatives from which the respondents could select options which were the closest to their own opinions or views. Such questions can help to clarify the intent of the question for the respondent if the area of investigation is unfamiliar to them. The researcher also left it open to the respondents to state their own points of view regarding knowledge management in their organizations. The interview schedule was largely a guideline and the researcher encouraged the respondents to freely give their opinions outside the questions in the interview schedule. The researcher conducted conversational kind of face-to-face interviews. The interview schedule (cf. Appendix A) was constructed and divided into five sections with relevant questions posed in every section as follows:

SECTION 1: Background Information and Profile.
Questions in section 1 sought to solicit information on the backgrounds of the organizations and the profiles of employees who worked in the organizations.
SECTION 2: Practices, Procedures and Tools of Knowledge Management.
The questions in section 2 were meant to gather information on whether and how knowledge management is practiced in the organizations investigated, how the organizations identify the knowledge they require and the kind of tools used in the organizations for knowledge management.
SECTION 3: Information and Communication Technologies
Information and communication technologies support and enable knowledge management. The questions in this section addressed the issues of investment of ICTs, the kind of information technologies invested in and the ease of access and use of information technologies by organizational members of the organizations investigated.
SECTION 4: Organizational Learning.
Organizational learning has become an integral of knowledge management. Questions in this section sought to gather information on whether the organizations investigated were learning organizations, types of training opportunities available for employees, the kind of skills emphasized to perform satisfactorily in a knowledge environment and the type of skills employees had acquired as a result of working for the organizations.
SECTION 5: Challenges of Organizational Knowledge Management and additional relevant comments.
Knowledge management is not without challenges and problems. In this section, respondents were asked to identify the challenges of practicing knowledge management in the organizations investigated. Respondents were also asked to identify what they thought were the greatest impediments to promoting access to knowledge in their organizations.

Table 4-2: Outline of the themes addressed in the Interview schedule

4.5 Study Population and Sampling

A study population is that aggregation of elements from which the sample is actually selected (Babbie, 1999:180). Kidder (1981:419) refers to a population as the aggregate of all the cases that conform to some designated set of specifications.

The units of analysis are the objects that a researcher initially describes for the purpose of aggregating their characteristics in order to describe some larger group or abstract phenomenon (Mugenda and Mugenda, 1999:14). Bailey (1982:85) calls units of analysis the "objects of study." The unit of analysis most often is the individual person, but it may also be a club, a country, a state, or a company record. In this study, the units of analysis were the individual employees.

To achieve the aim of the study, data were collected from the organizational environment in Kenya by investigating individuals employed by selected government-owned organizations by personally interviewing them, observing them and obtaining further background information by examining organizational records. The study population thus consisted of the employees in management ranks of government-

owned organizations in Kenya. The researcher however selected only four out of the 32 government-owned organizations in Kenya for this study based on the following rationale and criteria:

- It would not be practical both financially and time-wise to investigate every government-owned organization in Kenya.

- The organizations selected by the researcher represent a mix of large, medium and small-sized government-owned organizations in Kenya.

- Among the selected government-owned organizations were some of the best managed and most successful parastatals in Kenya. One would like to establish if the success of these organizations may partly be attributed to good organizational knowledge and information management practices and procedures.

- All of the government-owned organizations that were selected conduct research and have information resources management programmes in operation

- All of the government-owned organizations selected were typical non-profit-making service organizations whose success is measured by the quality of services they render to the general public in Kenya.

The selected organizations consisted of the Kenya Agricultural Research Institute (KARI), the Kenya Intellectual Property Institute (KIPI), the National Council for Science and Technology (NCST) and the Kenya Industrial and Research Development Institute (KIRDI). The Kenya Agricultural Research Institute represented a large-sized government-owned organization. The Kenya Industrial and Research Development Institute and the Kenya Intellectual Property Institute represented medium-sized government-owned organizations while the National Council for Science and Technology represented small-sized government-owned organizations. As all of those organizations are government-owned or parastatals they share many organizational and structural similarities.

4.5.1 Sampling

Sampling is a process whereby one makes estimates or generalizations about a population based on information contained in a portion (a sample) of the entire population (Adams and Schvaneveldt, 1985:175). Adams and Schvaneveldt contend that it is the goal of quality research to draw a sample that is truly representative of the total population from which the sample has been selected. In the social sciences, sampling is the equivalent of conducting an experiment on some elements or matter in the physical sciences. Sampling is used in surveys to select the subjects to be studied.

For the purpose of collecting data for this study, the researcher used purposive sampling. This is a type of non-probability sampling where a researcher uses his/her judgment about which respondents to choose that may best meet the purpose of his/her study (Bailey, 1982:99). With purposive sampling, the sample is hand picked to achieve some specific characteristic that will illuminate the purpose of the study (Adams and Schvaneveldt, 1985; Denscombe, 1998:15.

This researcher purposefully chose all of the respondents from the managerial ranks of the organizations investigated. The decision to employ purposive sampling and to select respondents from the managerial ranks was based on the fact that organizational/corporate knowledge management is a management concept and it is a policy issue which can only be handled by decision makers of an organization. As a fairly new managerial concept, only decision makers of an organization may know about it and be in a position to decide whether to integrate knowledge management with other management practices or not, and answer questions relating to the concept. Respondents were selected from the senior management, middle management and the lower management categories as it was assumed that they would most likely be directly involved in knowledge management of the organizations investigated. The respondents were thus all managers albeit at different managerial levels. Among the selected respondents were executives and senior managers who were considered to be valuable informants about the application of knowledge management in their organizations. The different managerial categories were differentiated by means of the following criteria:

- Managers who said they managed other managers were considered to belong to the senior management level.

- Managers who reported that they managed other managers in the lower managerial levels were considered to belong to the middle managerial levels.

- Managers who did not supervise any managers, but who supervised employees at the operational levels of their organizations were considered to belong to the lower managerial category.

4.5.2 Sample Size and Sampling Frame

A sample cannot be more accurate than the sampling frame from which it is drawn (Bailey, 1982:89). A sampling frame is a list of all objects in the population. If the objects are people, then every person in the population should be listed only once. Sometimes there are lists of given populations, but such lists might not be very accurate. In this study, the researcher used personnel lists of the organizations which were investigated. The assumption here was that such lists should have accurate and up-to-date information of employees. Mugenda and Mugenda (1999:42) are of the view that where resources allow, a researcher should take as large a sample as possible. With a large sample, the researcher is confident that if another sample of the same size were to be selected, findings from the two samples would be similar to a high degree. Bailey (1982:100) contends that the correct size of a sample should be dependent on the nature of the population and the purpose of the study. He says that many researchers consider 100 to constitute the minimum cases, but it is possible to sample a bare minimum of 30 cases under special circumstances. The personnel lists indicated that there were 180 managers in the various categories in the four organizations investigated. However, when the interviews were set up, it was established that only 144 of the managers were available at the time of the survey. The researcher was of the opinion that 144 respondents would be a sufficiently large sample as well as manageable sample as far as financial and time resources available to him were concerned. The researcher also considered the sample to be representative of those in the managerial ranks of government-owned organizations in Kenya.

The managers interviewed were chosen from senior level management, middle level, and lower level management as shown in table 4.2 below.

Managerial levels	Number	Percentage of total
Senior level	50	34.7%
Middle level	27	18.8%
Lower level	67	46.5%
Total	144	100%

Table4-1: Managerial levels of respondents

The 50 senior level managers constituted 34.7% of the total number of managers interviewed. Middle level ranking managers selected were 27, constituting 18.8% of the total number interviewed while the lower level managers numbered 67 (46.5%) of the total number of respondents interviewed.

4.6 Pilot Study

Pilot work is particularly required when devising the final wording of questions, which can take several forms to help elicit specific responses (Rosenthal and Rosnow 1991:186). The researcher conducted a pilot study to establish whether the items on the interview schedule were worded correctly and also to make sure that ambiguity and irrelevancy were minimized.

Piloting also enabled the researcher to explore the question of whether to use more open-ended questions or more structured questions or a mix of both. Piloting assisted the researcher to identify which questions on the interview schedule required re-framing, rephrasing or replacement altogether. In addressing the issue of piloting, Robson (1993:164) says that there is a great deal in favour of piloting any empirical research project.

Boynton (2005:66) points out a number of issues to consider that a researcher should take note of (a checklist for piloting):

- Was there any aspect of the study that had to be repeated or explained before participants understood it?

- What comments did the individuals who completed the pilot study make? Did they give feedback that suggested the study was flawed, or explain how their answers/actions were affected by your research?
- The researcher should note any persistent errors or misunderstandings by either participants or researchers.
- The researcher should ask the participants to tell him/her exactly what they thought the study meant and how this affected their responses or reactions.
- The researcher should assess how long his/her study will take to complete.

A small number of pilot interviews (14) were conducted among the employees of two of the organizations selected for this study. After conducting pilot interviews, the researcher analyzed the responses very carefully. As a result, some questions were eliminated from the interview schedule, others were rephrased, and some questions were merged. Piloting was done between April and May of 2004. This was more than six months before the actual data collection exercise started in November 2004.

4.7 Reliability and Validity

The term reliability is used to refer to the extent of consistency with which instances are assigned to the same category by different investigators or even by the same investigator at different times. The higher the consistency, the higher the degree of reliability and vice versa. Writing in 1990, Hammersley, as cited by Silverman, (1993:143) says that validity is the extent to which an account accurately represents the social phenomena to which it refers. Bickman (2000:148-149) thinks there is no proper definition of validity. He contends that validity may be defined in terms of the best available approximation of the truth. He finds it difficult to define truth as a concept as Robson (2002:93) avers that validity is concerned with whether the findings of a study are really about what they appear to be about.

According to Kidder (1981:7), research is valid when the conclusions are true. Research is also reliable when the findings are repeated. Kidder classifies validity into the following three categories.

- Internal validity when research accurately identifies casual relationships.

- Construct validity when research properly identifies or names variables under study.
- External validity when research shows something that is true beyond the narrow limits of a researcher's study. The findings should be true not just for the particular time, place and people in a researcher's study, but should be generally true of other times, places and people.

Kidder's further outline of the concepts of validity and reliability was deemed by the researcher to provide an appropriate summary of the interrelationship between the concepts:

> *Replicating a finding in a different setting and with different procedures is the same as demonstrating that the research has external validity and can be generalized across different people, places or conditions. Exact replications of procedures and results demonstrate that the research is valid (Kidder, 1980:9).*

The researcher has done a number of things to enhance the levels of reliability and validity of the findings of this study:

- The researcher employed more than one technique for collecting data (triangulation).
- A pilot study was undertaken whereby the interview schedules were pre-tested to make sure that the questions were clear and free of unnecessary ambiguities.
- A number of fixed-choice answers were provided in the interviewing schedules to maximize the chances of getting similar responses from the respondents.

4.8 Executing the Empirical Study

The researcher personally interviewed all 144 respondents selected for the sample. An interview with a single respondent lasted between one hour and three hours. Most respondents were not very clear of what knowledge management entailed and the researcher had to initiate all interviews by defining the meaning of knowledge, and explaining the extent of knowledge management. In most cases, the respondents

realized that the concepts of knowledge and knowledge management were not as unfamiliar as they originally thought and that they had always used and managed knowledge in the course of their duties.

4.9 Some Ethical Considerations

Considering that research in the real world has to deal with people and the things that affect them, ethical issues are bound to arise at the planning, implementation and reporting stages of research (Gray, 2004:58). Gray avers that receiving informed consent is an important issue in ethical considerations. The researcher took into consideration a number of ethical considerations when planning for and conducting interviews for this study. It is a government requirement that any researcher conducting research in Kenya must be cleared by the Ministry of Education, Science and Technology. This enables the Ministry of Education, Science and Technology to account for all the research activities in the country. This researcher thus obtained clearance from the Ministry of Education, Science and Technology before embarking on the study.

Every respondent was assured of his/her rights of consent, protection from disclosure of information and respect for personal privacy. Some respondents agreed to be interviewed on condition that they would not be asked questions which they considered very personal. This was guaranteed ahead of the interviews.

The researcher promised anonymity and confidentiality of individuals ahead of interviews and in keeping with receiving informed consent, the researcher had to further explain to the management and those who participated:

- The aim of the research
- Who was being asked to participate and why
- The identity of the person undertaking the research
- The kind of information that was being sought
- That participation was voluntary

4.10 Data processing and Data presentation

The data collected and findings of the study are analyzed, presented and discussed in the ensuing chapters. The descriptive results of the researcher's findings are presented using descriptive statistics. The statistics are presented in appropriate tables or in chart form to make the final document as user-friendly as possible.

4.11 Summary

This study is on the assessment of procedures, processes and challenges of knowledge management in government-owned organizations in Kenya. The researcher used surveys as the primary research methodology, wherein both qualitative and quantitative approaches were combined. The specific data collection techniques used by the researcher are face-to-face interviews, observation and content analysis. Although the techniques have certain inherent disadvantages, the numerous advantages persuaded the researcher to utilize them as the most appropriate data collection techniques for this study. The data were collected from 144 respondents by way of face-to-face interviews. It was a purposive type of sampling and only those respondents in managerial positions were interviewed. The study population included managers from four government-owned organizations in Kenya.

CHAPTER FIVE
DATA PRESENTATION, ANALYSIS AND INTERPRETATION

5.1 Introduction

Data analysis means processing data, e.g. tabulating the results, so as to make clear inherent facts or meanings that evolve from the empirical study. It is an exercise which involves summarizing data into smaller, simpler and manageable parts for easy and simpler interpretation. The data analysis exercise should be done in such a way that the results and interpretation thereof respond to the aim and objectives of the study as set out (cf. Chapter 4:1). This chapter therefore deals with the processing, presentation and general analysis of the data collected for the study

It is now generally accepted that knowledge is an important and strategic organizational resource that makes it possible for other resources to be exploited effectively and efficiently. As an important and strategic organizational resource, knowledge must be systematically planned for and managed so as to enable corporations to enhance productivity and competitiveness.

To effectively achieve the aim and objectives of this study, the variables that were investigated related not only to the general practices and procedures of knowledge management of the organizations investigated, but also took into account variables and concepts relating to the tools of knowledge management, the state of information and communication technologies, whether the organizations investigated were learning organizations and finally challenges of managing organizational knowledge in the Kenyan organizational environment.

5.2 Profile of the Respondents

Questions in section 1 of the interview schedule were meant to collect information on the general background of the organizations which were investigated, as well as on the personal details of the respondents. These questions enabled the researcher to

profile the study population to obtain an overall picture of the attributes of the respondents and their organizations. Specific questions on gender, age and educational qualifications did not appear on the interview schedule as it was found during the pilot survey that some respondents were very sensitive to these issues. The researcher thus quietly noted the gender of the respondents and at the end of the interview verbally asked the respondents to indicate their age brackets and educational qualifications.

From table 5.1 below, it can be seen that the number of respondents interviewed varied considerably from one organization to the other. This can be attributed to the size of the organizations and their staff complements. It was seen in section 4.5 that all personnel in management positions in the four organizations and who were available at the time of the study were interviewed. It thus followed that the larger the organization, the higher the number of respondents (cf. Chapter 4:5). Some 84 respondents were interviewed from KARI, 25 from KIPI, 20 from KIRDI and 15 from the NCST (cf. table 5.1) below. KARI was clearly the largest organization with the largest number of the respondents (53.3%) and the National Council for Science and Technology was the smallest organization with the smallest number of respondents (10.4%).

Organization	Number	Percentage of total
KARI[1]	84	58.3%
KIPI[2]	25	17.4%
KIRDI[3]	20	13.9%
NCST[4]	15	10.4%
TOTAL	144	100.0%

Table 5-1: Distribution of managerial ranks of the respondents (n =144)

As indicated above and in Chapter four section 4.5, all the respondents were in managerial positions (cf. question 3, Appendix A), ranging from lower to senior managerial levels (cf. table5.2). As stated previously, the reason for this selection was because organizational knowledge management is to a large extent a managerial responsibility in any organization. It can be seen from table 5.2 below that the lower

[1] Kenya Agricultural Research Institute
[2] Kenya Industrial Property Institute
[3] Kenya Industrial and Research Development Institute
[4] National Council for Science and Technology

management level accounted for the largest proportion (46.5%) of the respondents, those in the middle level accounted for the smallest proportion (18.8%) and those in the senior level accounted for just over a third (34.7%) of the respondents (cf. also 4.5).

Managerial ranks	Percentages of various managerial ranks
Lower	46.5%
Middle	18.8%
Senior	34.7%
Grand Total	100.0%

Table 5-2: Percentages of managerial ranks of the respondents by organizational affiliation (n =144)

The lower ranking managerial category was the most highly populated category and they thus clearly represented the highest percentage of the respondents. A number of the senior managers originally awarded the researcher only a few minutes of their time for the interviews, but after the researcher explained to them the nature of the concept knowledge management, they became interested and eventually spent considerable time with the researcher asking several questions about knowledge management and how it is implemented.

If the managerial position levels are cross-tabulated with the organizational distribution, it can be seen that significant differences surfaced among the organizations. The senior managerial distribution was exceptionally high for the National Council for Science and Technology (NCST). Of all the respondents from the Council, 73.3% were senior managers, 20.0% of the respondents were middle level managers and only 6.7% occupied lower level managerial ranks

The Kenya Industrial Research and Development Institute (KIRDI) had the second highest number of senior ranking managerial respondents. The senior managers at KIRDI constituted 40.0% of all the respondents while 25.0% were at the middle level and 35.0% at the lower level.

The distribution of respondents at the Kenya Agricultural Research Institute (KARI) consisted of 33.3% senior level managers, 16.7% middle level managers and 50.0% lower level managers. It is clear there were very few middle level managers at KARI.

It is an agricultural research institute and those who occupy senior level managerial positions double as senior administrators and senior researchers, while most of the KARI employees in the middle level management are support staff who are not involved in research.

The managerial staff that was surveyed at the Kenya Industrial Property Institute (KIPI) consisted of 12.0% at senior level, 20.0% at middle level and 68.0% at the lower management level. It is clear that this organization contained the smallest number of senior and middle level managers.

5.2.1 Age Categories

Age is generally considered to be important as a factor in relation to tacit knowledge as older persons are assumed to be rich in tacit knowledge which they acquire over time with work experience, training and many years of continuous education (Nonaka and Takeuchi (1995:148).The researcher asked the respondents to indicate which of the three age brackets applied to them (cf. question 4, Appendix A). The three age brackets provided were below 35 years of age, between 36 and 50 years and above 50 years of age. Since the researcher had targeted managers as respondents, the assumption was made that there would be very few managers below the age of 35 years.

AGE	Total
Above 50	27.1%
36-50	44.4%
Below 35	28.5%
Grand Total	100.0%

Table 5-3: Age categories of the respondents (n =144)

The data according to age categorization are depicted in table 5.3 above. It can be seen that the highest proportion of the respondents were between 36 and 50 years of age (44.4%), and that much smaller proportions were below 35 and above 50 years of age. Most of the respondents who were above 50 years of age occupied senior managerial positions and the respondents in the range of 36-50 years of age were fairly equally distributed between middle level and senior level management positions. Almost all the respondents younger than 35 years of age occupied lower

level managerial positions while only a few occupied middle level managerial positions. No respondent below the age of 35 occupied a senior management position in any of the organizations investigated.

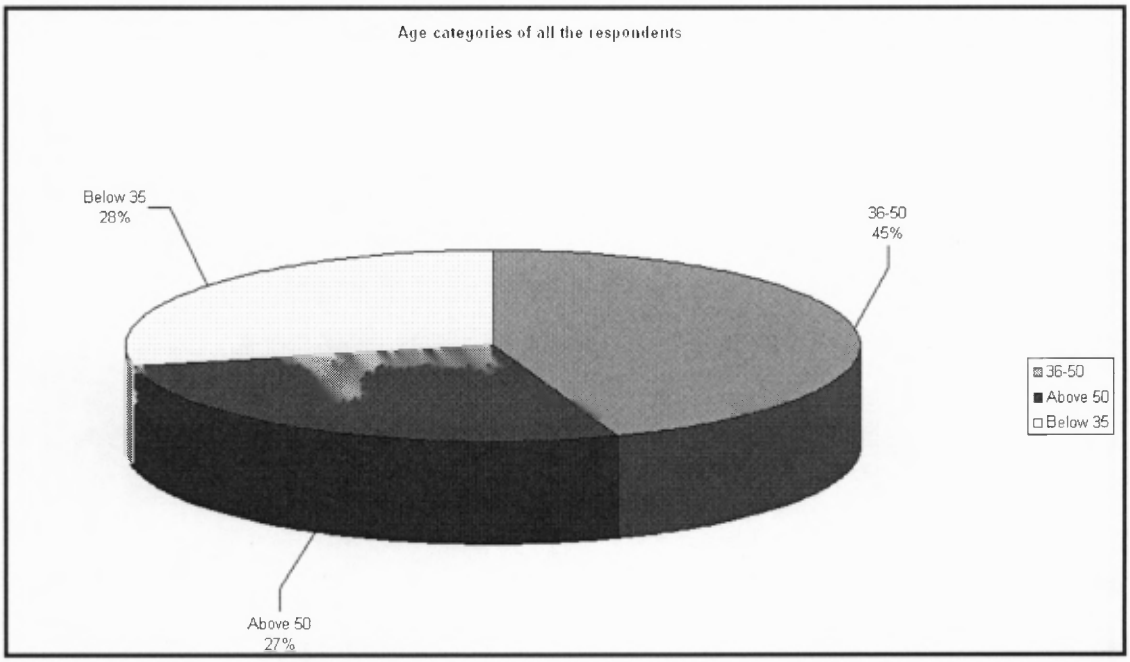

Chart 5-1: Age categories of the respondents

If the age categorization of the respondents is cross-tabulated with with the organizational distribution, it can be seen that the majority of the respondents (73.3%) from the NCST were aged above 50 years, while KIPI had the lowest percentage (4.0%) of respondents aged above 50 years. The other organizations followed the overall age distribution pattern fairly closely.

5.2.2 Gender Distribution

As mentioned previously, the researcher unobtrusively noted the gender of each respondent. It was abundantly clear that the gender distribution at managerial levels in the organizations investigated was very uneven and as seen in table 5.4 below, more than two thirds of the respondents were male and only 31.3% were female.

Gender	Total
Female	31.3%
Male	68.8%
Grand Total	100.0%

Table 5.4: Gender distribution (n = 144)

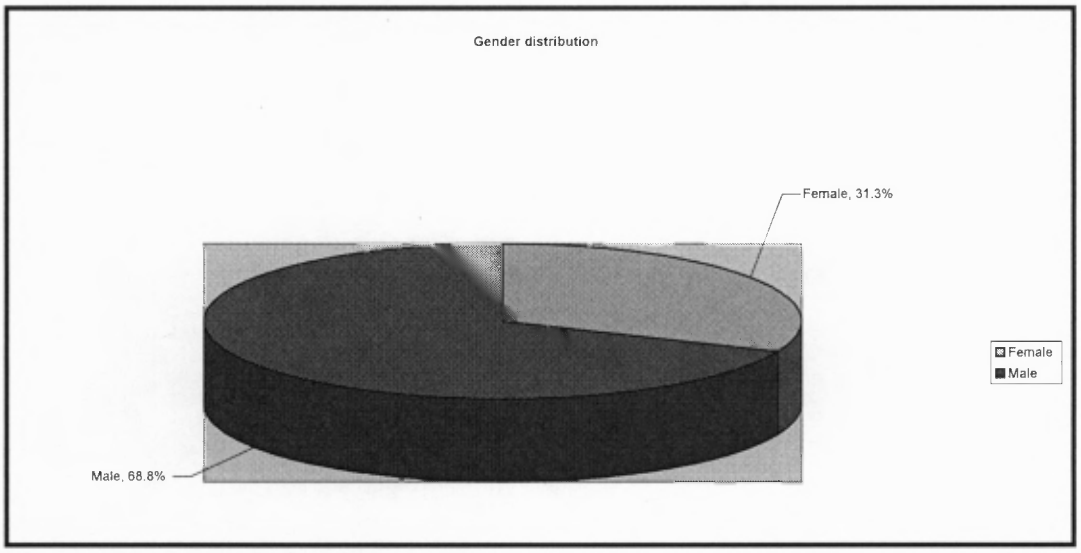

Chart 5-2: Gender distribution in managerial positions

It was further interesting to note that not a single woman was a chief executive officer of any of the organizations. Even at the Kenya Agricultural Research Institute, where 40.5% of the respondents were women, it was found that most of the women held lower level and middle level managerial positions.

At the other three organizations, this ranged from a female respondent ratio of 26.7% for the National Council of Science and Technology, to 20.0% at the Kenya Industrial Property Institute, to the lowest number of female respondents (10.0%) at the Kenya Industrial and Development Research Institute. These figures clearly point to gender inequality in the managerial positions at the organizations investigated.

5.2.3 Education Levels

According to Wiig (1994:97), workplace sophistication continues to increase and this requires extensive knowledge and capabilities to operate effectively in such an environment. Such capabilities and knowledge may be acquired through formal training and education or by work experience and informal training and education. It

was thus encouraging to note that all the respondents had some level of formal educational qualifications and these ranged from 15.0% of the respondents who were PhD holders, to 43.8% who were Master's degree holders, to 25.0% who were Bachelors degree holders (cf. table 5.5 below and also question 6, Appendix A). Only 16.0% of the respondents were in the high school to diploma level category.

All the respondents (100.0%) at the National Council for Science and Technology had at least a first degree qualification, with 66.7% having master's degree qualifications and 13.3% having PhD qualifications. The Kenya Agricultural Research Institute had the highest percentage of respondents who were PhD holders at 20.2%, and the second highest number of Master's degree holders at 50.0%. KIPI had the lowest number of respondents who had PhD qualifications at 4.0%, while 24.0% held master's degrees, 60.0% bachelor's degrees and 12.0% were in the high school to diploma category. KIRDI had the largest number (20.0%) of respondents who were in the high school certificate to diploma level category while 45.0% of their respondents had first degree qualifications, 25.0% had master's degree qualifications, and 10.0% had PhD qualifications. All the chief executives of the organizations investigated were PhD degree holders.

Qualifications	Total
High schl, certificate/diploma	16.0%
Bachelor's	25.0%
Master's	43.8%
PhD	15.3%
Grand Total	100.0%

Table 5-5: Academic/education levels of respondents (n =144)

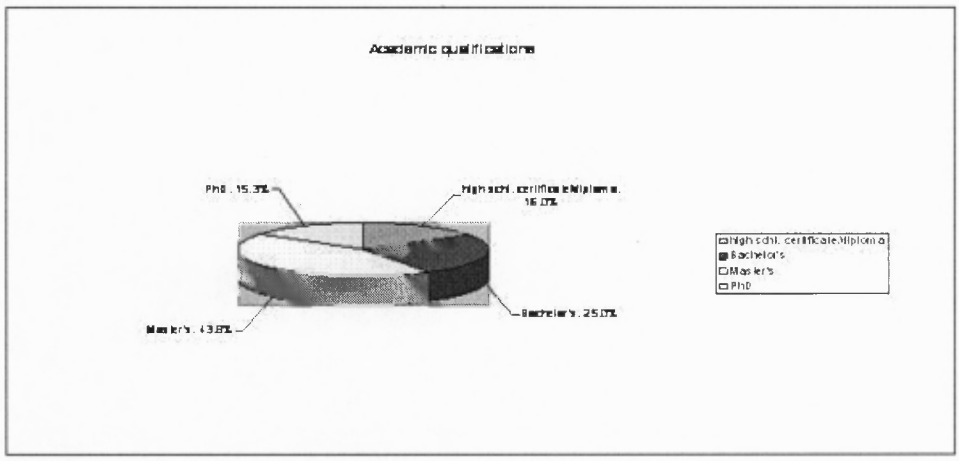

Chart 5-3: Academic qualifications of the respondents

5.3 Practices, procedures and Tools of Knowledge Management

This section sought to collect information on how knowledge management is practiced, procedures of managing knowledge and the kind of tools that are used for managing knowledge in the organizations investigated. Taking into account the definitions of knowledge management available in the literature (cf. Chapter three, section.3:3.2), one can infer that there are certain core components that relate to its practice. It is the view of this researcher that the basic core components are creation and sharing of knowledge. The practices, procedures and tools of knowledge management of an organization should thus revolve around these core components.

On account of the qualitative approach that the researcher adapts, emphasis is not placed on the measurement of practices, procedures and tools of knowledge management in the organizations investigated. Emphasis is rather placed on obtaining insight into practices, procedures and tools of knowledge management available in the organizations investigated. Emphasis is also placed on understanding organizational culture, structures, technologies and the values favourable to knowledge creation and sharing in the organizations.

5.3.1 Availability of Knowledge Management Programmes

Every respondent was asked to indicate whether there was a corporate knowledge management programme or an information resources management programme in his/her organization (cf. question 7, Appendix A). Many respondents could not readily differentiate between a knowledge management programme and an information resources management programme. They could also not clearly differentiate between knowledge and information. The researcher had to take time to explain the difference between the various concepts and only then could the respondents indicate what kind of programme was available in their organizations. As shown in table 5.6 below, a vast majority of the respondents (90.5%) said they were aware of the existence of information resources management programmes in their organizations.

KM & IRM programmes	Total
Both	12.5%
IRM[1]	87.50%
KM[2]	0.00%
Grand Total	100.00%

Table 1-6: Knowledge and information resources management programmes availability (n =144)

Only 12.5% of the respondents said they were aware of the existence of both knowledge management and information resources management programmes in their organizations, while not a single respondent stated that a knowledge management programme on its own was available at his/her organization. It is thus clear to this researcher that the statement made by Mendes, Gomes and Batiz-Lazo, (2004:150) that knowledge is a pervasive concept and its use and generation very difficult to observe, applies even more so to the Kenyan situation.

[1] Information Resources Management
[2] Knowledge Management

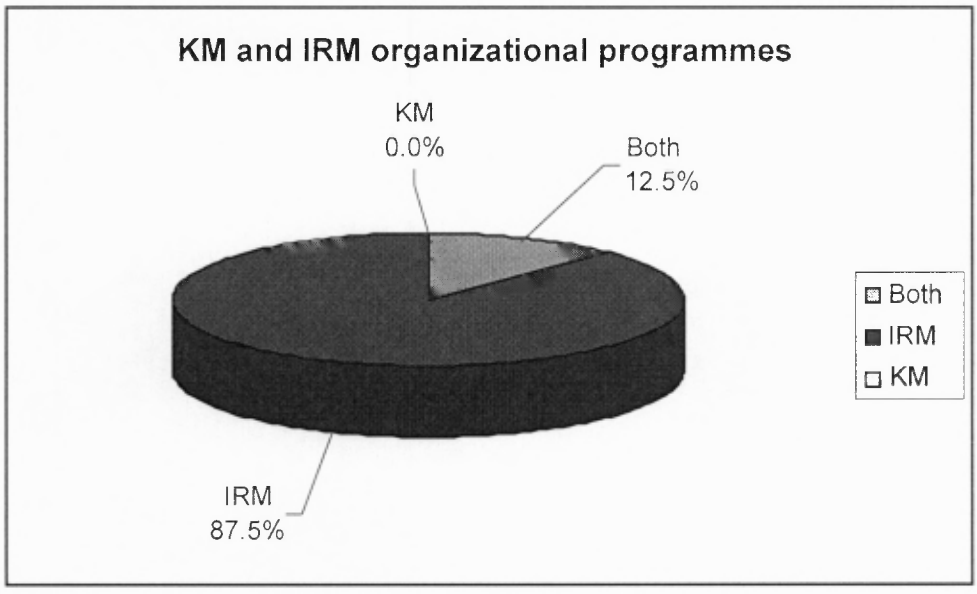

Chart 5-4: Availability of knowledge and information resources management programmes

A number of respondents however indicated that although there were no specific activities explicitly designated as knowledge management activities, many activities in their organizations were knowledge processing oriented. They were therefore not sure whether they should term such activities as knowledge management activities or information resources management activities. After probing the respondents, it became evident that although there are hardly any programmes specifically designated pertaining to knowledge management, there are many activities that are related to knowledge creation, knowledge use, knowledge acquisition, knowledge sharing and knowledge transfer in the organizations where interviews were conducted.

5.3.2 Perceived Relative Importance of Information

It is generally accepted that a knowledge management programme can only be successfully maintained in an information-rich environment. The researcher thus wanted to establish the respondents' perception of the relative importance of information compared to the other resources that are generally considered to be critical to the success of the operations of any organization (cf. question 8, Appendix A). As was seen in Chapter two, section 2.2, finance, human and physical resources are most frequently regarded as being crucial to the success of any organizational operations. The researcher added information and presented the respondents with this list of critical resources and asked them to rate their responses on a scale of one to

three in ascending order of relative importance. The respondents' ratings are shown in table 5.7 below.

Relative importance	Information Resources	Finance Resources	Human Resources	Physical Resources
Least important	20.1%	5.6%	4.9%	69.4%
Fairly important	31.9%	37.5%	11.1%	19.4%
Very important	47.9%	56.9%	84.0%	11.1%
Grand Total	100.0%	100.0%	100.0%	100.0%

Table 5-7: Perceived relative importance of various organizational resources (n=144)

The results indicate that the respondents clearly attributed the highest rating to human resource (84%), followed by finance (56.9%) and information resources (47.9%) at fairly similar ratings. Physical resources attracted the lowest ratings at 11.1%. It is true that a knowledge management programme may not succeed in an environment that is not information intensive, but the respondents confirmed the conventional wisdom that human resources are critical for the success of any managerial endeavour, and it is this researcher's view and this includes knowledge management as a considerable amount of organizational knowledge is manifested in the minds of organizational members' tacit knowledge, capabilities and expertise.

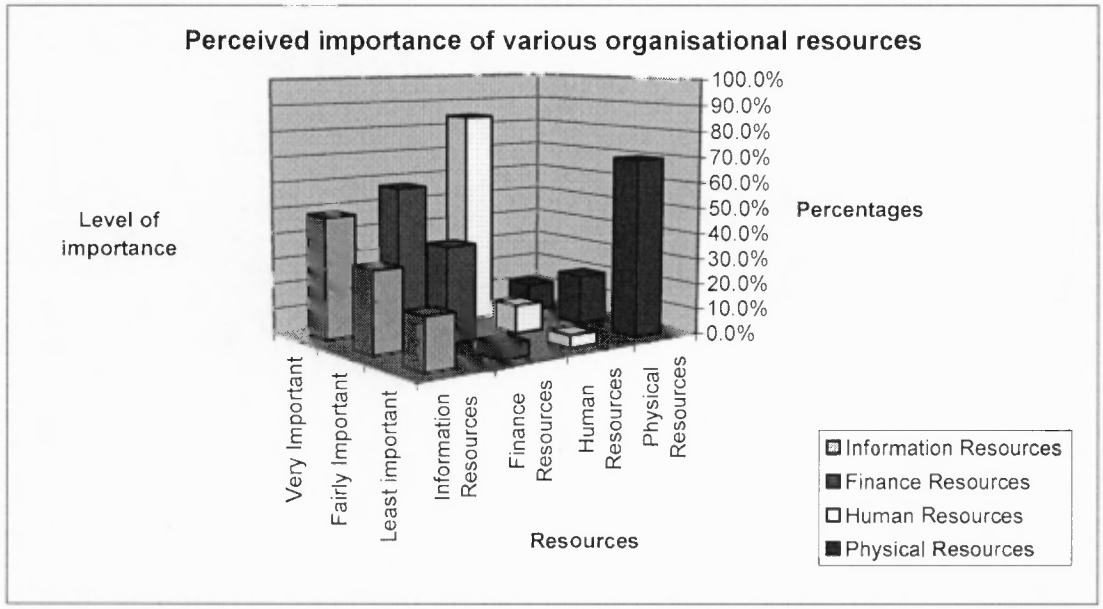

Chart 5-5: Perceived importance of information resource compared to other resources

5.3.3 Knowledge Management as an Important Managerial Concept

The researcher wanted to establish the value that the respondents attributed to knowledge management as a managerial concept (cf. question 9, Appendix. A). As shown in table 5.8 below, 83.3% of the respondents considered knowledge management to be a very important managerial concept, while the residual 16.7% considered it to be an important managerial concept

KM Importance	Total
Important	16.7%
Very Important	83.3%
Not important	0.0%
No opinion	0.0%
Grand Total	100.0%

Table 5-8: The importance of knowledge management as a managerial concept (n=144)

This outcome, although it can be seen as a contradiction to the paucity of knowledge management programmes in operation (cf. 5.3.1), can be explained by the fact that the researcher had discussed the meaning of the concept of knowledge management with the respondents during the interviews (cf.3:3.2).

The respondents had therefore evaluated the importance of knowledge management based not on the knowledge management programmes available in their organizations, but on the discussion they had with the researcher.

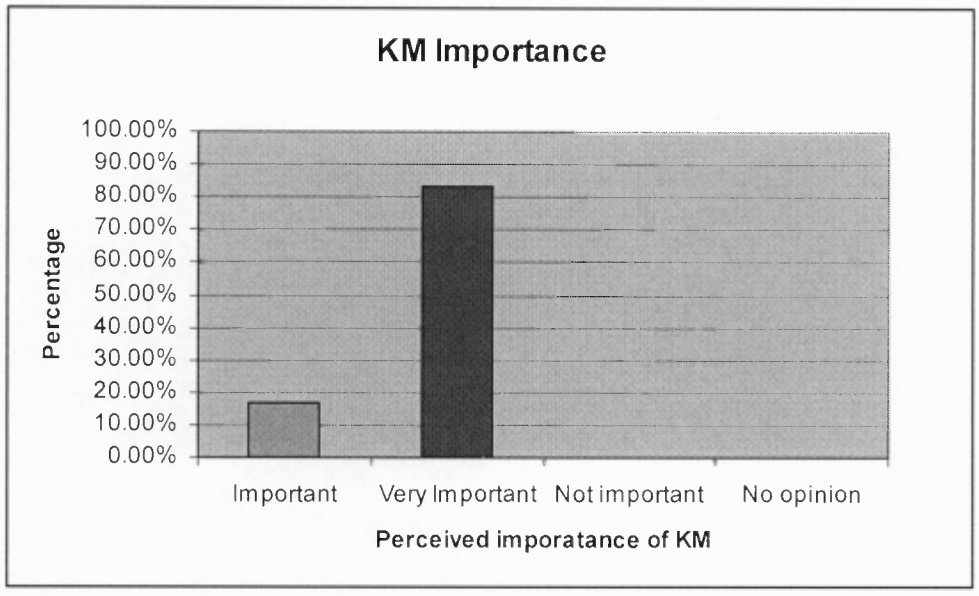

Chart 5-6: The importance of KM as a managerial concept

5.3.4 Knowledge Management-related Positions

As the concept of knowledge management is still new to most Kenyan organizational environment, many organizations have not yet created positions specifically designated as that of knowledge managers or knowledge officers. The researcher however observed that many positions in Kenyan government-owned organizations are held by officers who perform duties that are clearly related to knowledge management. Wigg (1995:364) argues that to some extent, all enterprises organize knowledge possessed by people through human resources management activities. Other enterprises organize knowledge by keeping track of the knowledge resources of their professional staff.

The researcher thus wanted to establish all the knowledge management-related positions e.g. training manager/officer, information manager/officer, librarian etc. as well as those that are specifically designated as knowledge manager that existed in the organizations investigated (cf. question 10, Appendix A).

It was evident that the respondents were not quite sure of the differences between the various knowledge management related categories they were presented with. The researcher thus briefly explained in the simplest possible terms the different roles of each position. He explained the role of a knowledge manager as one who identifies,

collects, stores and retrieves knowledge for use, while a training manager is one who is responsible for initiating, organizing and coordinating training activities in an organization. A training manager in a way helps employees to acquire new knowledge, skills and capabilities relevant to their work requirements. Liebowitz and Wright (1999:5-6) contend that formal training is one of the factors that affect human capital growth.

Regarding information manager, the researcher explained that this is the person in charge of activities carried out in order to supply everyone in an organization with the information necessary to perform the functions assigned to them (cf. 3.2.1). It was explained to the respondents that the communication manager and the public relations manager speak for the organization and can also stimulate learning in the organization. The communication manager and public relations manager are also charged with communicating new information and knowledge to organizational members. The respondents were informed that a documentalist is the custodian of documents which contain knowledge and information.

Knowledge management-related positions							
Positions	Knowledge manager	Training manager	Information manager	Librarian	Communications manager	Documentalist	PR manager
Available	9.0%	88.2%	88.9%	100.0%	48.6%	89.6%	90.3%
Not available	91.0%	11.8%	11.1%	0.0%	51.4%	10.4%	9.7%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5-9: Knowledge management-related positions available (n=144)

From the responses, the researcher deduced that while many knowledge management-related positions were generally available, the specific position of knowledge manager/officer was found in only 9.0% of the instances. According to the respondents, all the organizations maintained the position of a librarian and the vast majority of the respondents (90.3%) said they maintained the position of a public

relations manager, information manager (88.9%), training manager (88.9%) and documentalist (89.6%) and (48.6%) had a communications manager in their organizations.

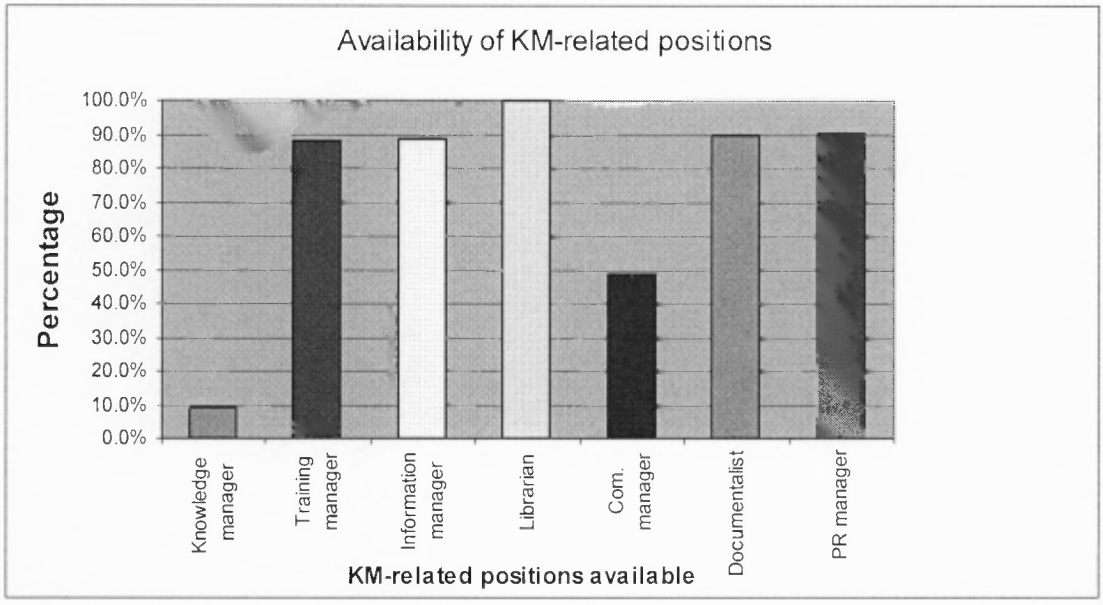

Chart 5-7: Knowledge management-related positions available

5.3.5 Knowledge Repositories

As with many of the questions, it was clear that the respondents were not initially certain of what was meant by the term "knowledge repositories" (cf. question 11a, Appendix A). However, after the researcher explained to the respondents that a knowledge repository is a central place or store where knowledge is stored and maintained, they were able to respond. The respondents were further informed that a knowledge repository can be electronic or manual and that typical examples are data warehouses, archives and information centres, libraries etc. It was explained that knowledge repositories can be used for storage of knowledge sources, including traditional sources of information, best practices, discussion databases, directories of expertise, communications, data etc. The researcher also mentioned that an organizational knowledge repository is a collaborative system where employees can query and browse both structured and unstructured information in order to retrieve and preserve organizational knowledge assets and facilitate collaborative working.

Availability of knowledge repositories	Total
Available	99.3%
Not available	0.7%
Grand Total	100.0%

Table 5-10: Availability and non-availability of knowledge repositories (n=144)

Almost all the respondents (99.3%) indicated that some form of knowledge repositories were available in their organizations as shown in table 5.10 above

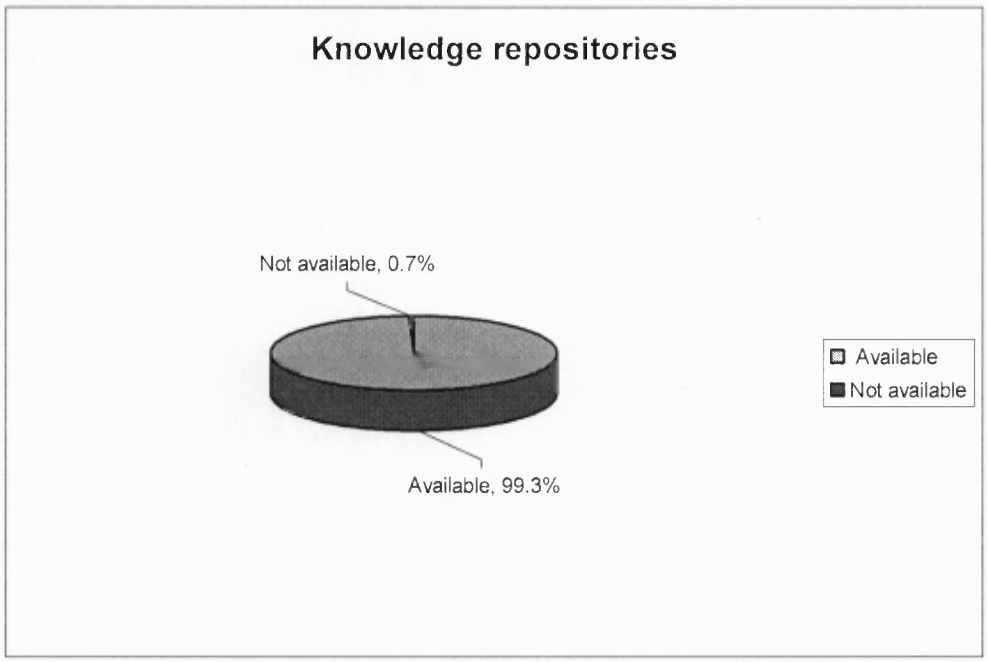

Chart 5-8: Availability and non-availability of knowledge repositories

5.3.6 Types of Knowledge Stored in Repositories

After questioning the respondents on the availability of knowledge repositories, the researcher wished to establish the types of knowledge stored in the repositories. The researcher asked respondents to categorise the repositories in their organizations according to the three main categories of knowledge. He had identified these categories during the pilot study, from information found in the literature reviewed and from the theoretical framework (cf. Chapter two, section 2.5.2). The three main categories were external knowledge, structured internal knowledge and informal internal knowledge (cf. question 11b, Appendix A).The researcher once again

explained the differences between and meaning of each of the concepts. The responses received are shown in table 5.11 below.

Types of knowledge	External knowledge	Informal internal knowledge	Structured internal knowledge
Available	94.4%	86.1%	97.2%
Not available	5.6%	13.9%	2.8%
Grand Total	100.0%	100.0%	100.0%

Table 5-11: Types of knowledge stored in repositories of the organizations investigated (n=144)

From the responses received, it is clear that all three types of knowledge were generally available and stored in the repositories of the organizations investigated (cf. also chart 5.10 below).

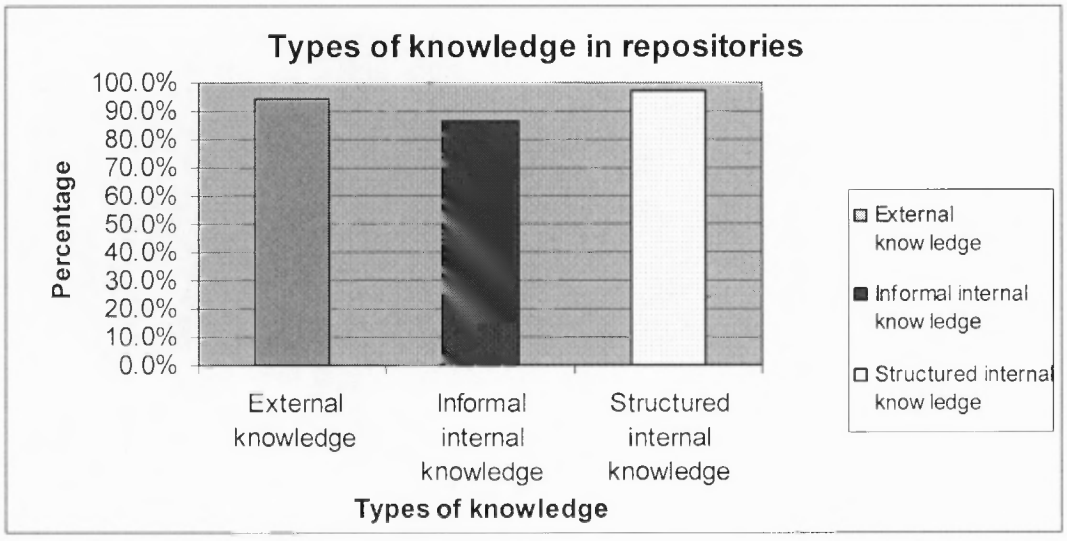

Chart 5-9: Types of knowledge stored in the available repositories

5.3.7 Acquisition of Knowledge and Information

It is a generally accepted view that knowledge management programmes succeed in organizations where the acquisition of knowledge and information is seen as a priority (cf. chapter three, section 3:3.3). Holsapple and Joshi (1999:7-3) identify factors that influence the conduct of knowledge management as managerial influences, resource influences and environmental influences. These factors can also determine whether the acquisition of knowledge and information is a priority or not. Managerial influences are amongst others concerned with administering the conduct of

knowledge management (cf. chapter two, section 2:2.2), while resource influences relate for example to financial, human and material resources and can be deployed according to priority which can limit or enable the conduct of knowledge management in an organization. The environmental influences which can impact on prioritizing the acquisition of knowledge and information in an organization are competition, markets and regulators. For a more detailed exposition of these factors, see chapters 2:2.2 and 3:3.3.

The researcher therefore wanted to establish from respondents if the acquisition of knowledge and information in their organizations was seen as a priority (cf. question 12, Appendix A). An overwhelming majority of the respondents (90.3%) said that acquisition of knowledge and information was a priority in their organizations as shown in table 5.12 below.

Knowledge and information acquisition as priority	Total
Yes	90.3%
Sometimes	8.3%
No	1.4%
Grand Total	100.0%

Table 5-12: Acquisition of knowledge and information as priority (n=144)

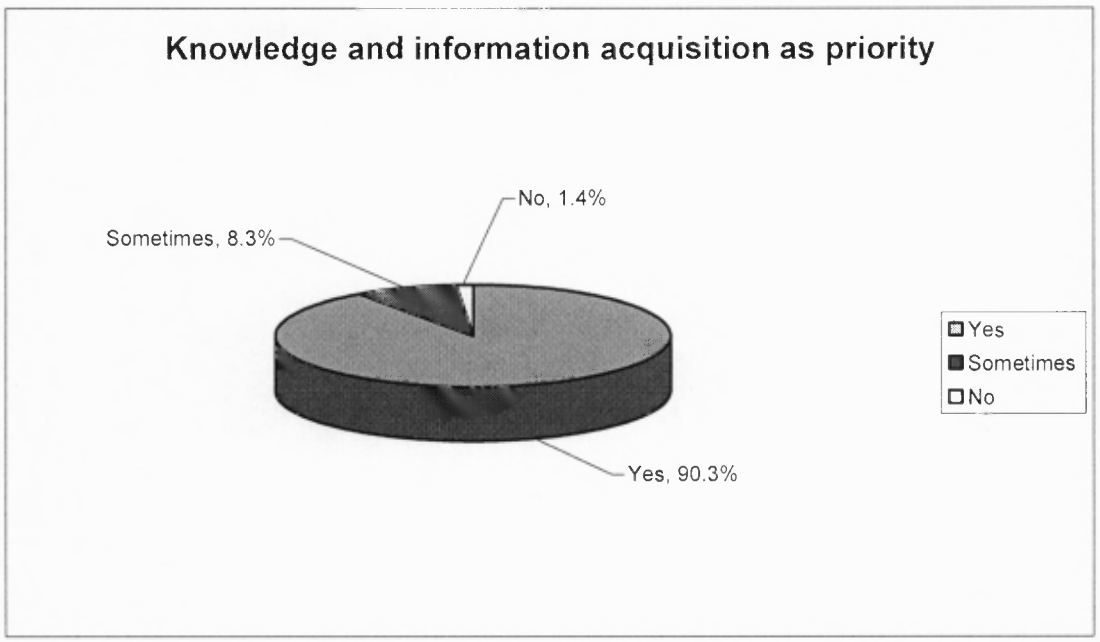

Chart 5-10: Knowledge acquisition as priority

Based on the responses that the acquisition of knowledge and information is indeed a priority in the organizations investigated, the researcher had reason to believe that most of the organizations are engaged in knowledge management-oriented activities even though the activities are not explicitly recognised as such in the organizations.

5.3.8 Knowledge Environment

A favourable knowledge environment is one that is conducive to the practice of knowledge management (Davenport and Prusak, 1998:149). In an organization where a favourable knowledge environment exists, attempts are made to measure the value of knowledge, improve the value of knowledge capital, build awareness and cultural receptivity, change behaviour as it relates to knowledge and improve the knowledge management process (cf. 1:4.2 and also 2:6). He further explained that he wished to establish the extent to which attempts are made to measure or improve the value of knowledge capital in the organizations investigated, whether efforts are made to build awareness and to change behaviour as it relates to knowledge, and if any attempts are made to improve the knowledge management process in the organizations. Taking these factors into consideration, the researcher asked respondents if they thought there was a favourable knowledge environment in their organizations (cf. question 13, Appendix A). The responses to this question are as shown in table 5.13 below.

Favourable knowledge environment	Total
Favourable	91.0%
Not favourable	9.0%
Grand Total	100.0%

Table 5-13: Favourable knowledge environment (n=144)

Almost all respondents (91.0%) indicated that most of the factors that enhance a favourable knowledge environment were adhered to in their organizations.

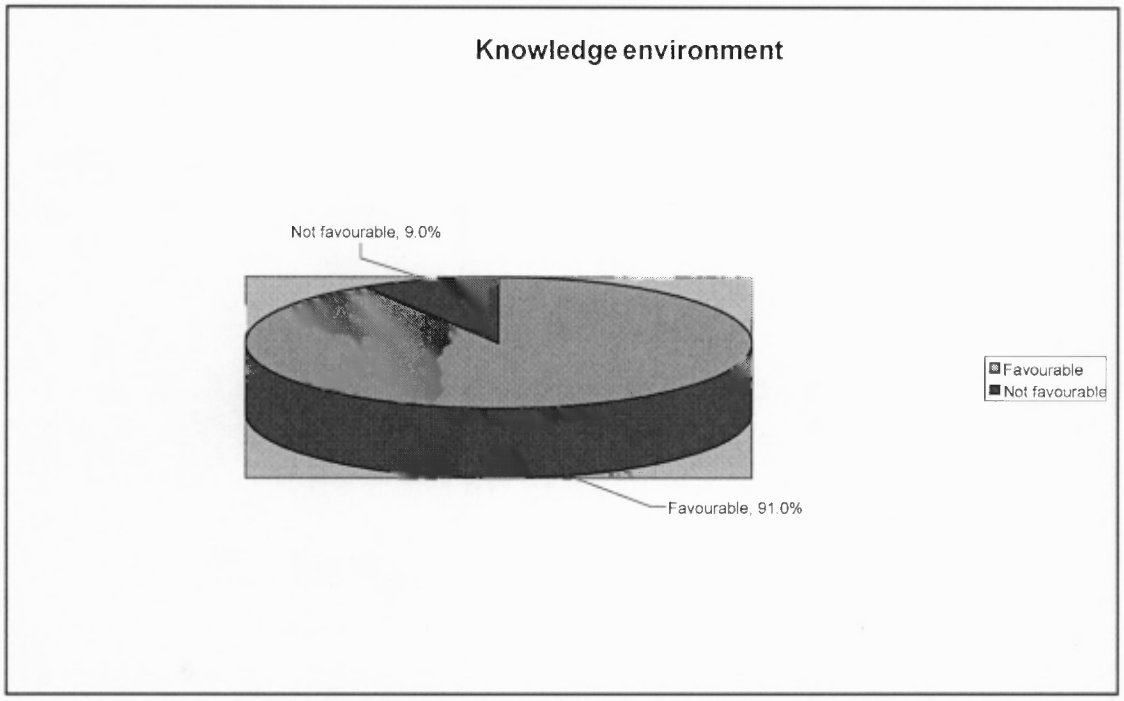

Chart 5-11: Favourable knowledge environment (n=144)

The fact that most respondents (91.0%) in the organizations investigated said there was a favourable knowledge environment in their organizations would suggest that knowledge management programmes could successfully be implemented in the organizations.

5.3.9 Use of Knowledge in Innovation and Creating New Products and/or Services

Innovation and the creation of new products and/or services is knowledge-intensive and one of the organizational characteristics which supports a continuous innovation process is a strong knowledge base (Nonaka and Takeuchi, 1995:141), (also chapter three, section 3.4.1). The respondents were asked to state whether their organizations acquired and used knowledge in the process of innovating new products and/or services (cf. question 14, Appendix A). The responses received are as shown in table 5.14 below.

Product/Service innovation and knowledge use	Total
Yes	97.2%
No	2.8%
Grand Total	100.0%

Table 5-14: Innovation of new products/services (n=144)

A very large majority of the respondents (97.2%) indicated that their organizations were very serious about acquiring and using knowledge in the process of innovating and creating new products and/or services (cf. also chart 5.13 below).

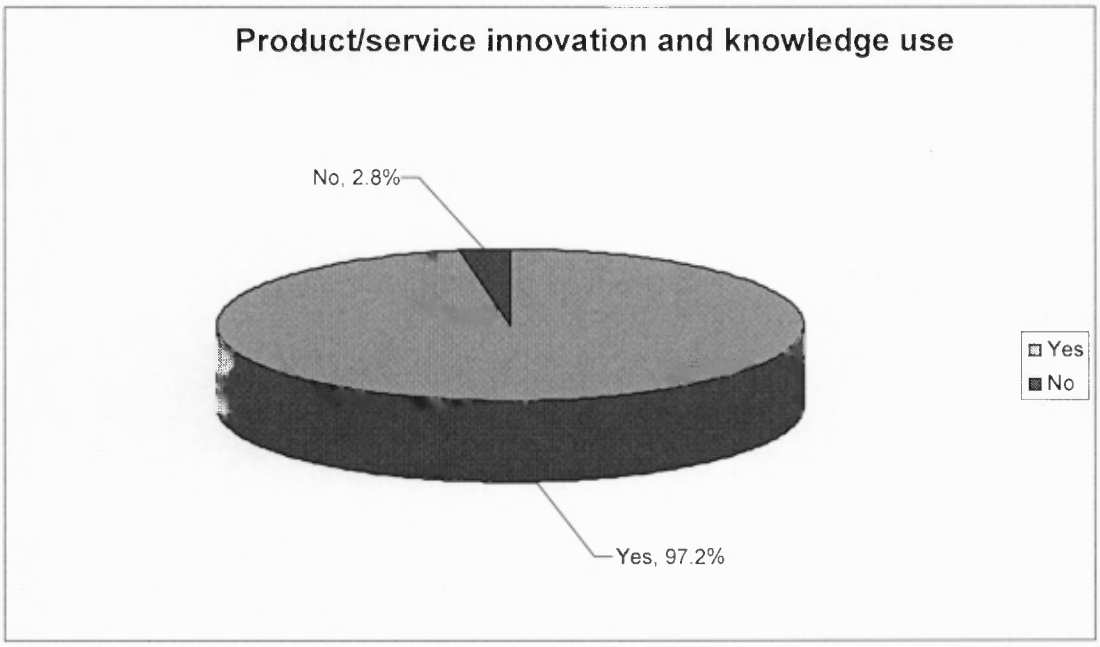

Chart 5-12: Product/service innovation and knowledge use

5.3.10 Collaboration with Other Organizations

To establish the level of knowledge sharing in the organizations investigated (cf.3.4.2), the respondents were asked to indicate whether their organizations engaged in collaboration with other organizations (cf. question 15a, Appendix A). The responses received are shown in table 5.14 below.

Collaboration	Total
Yes	99.3%
No	0.7%
Grand Total	100.0%

Table 5-15: Collaboration with other organizations in knowledge creation and sharing (n=144)

Nearly all the respondents (99.3%) stated that their organizations collaborated with other organizations in knowledge creation, dissemination and sharing (cf. also chart 5.14 below).

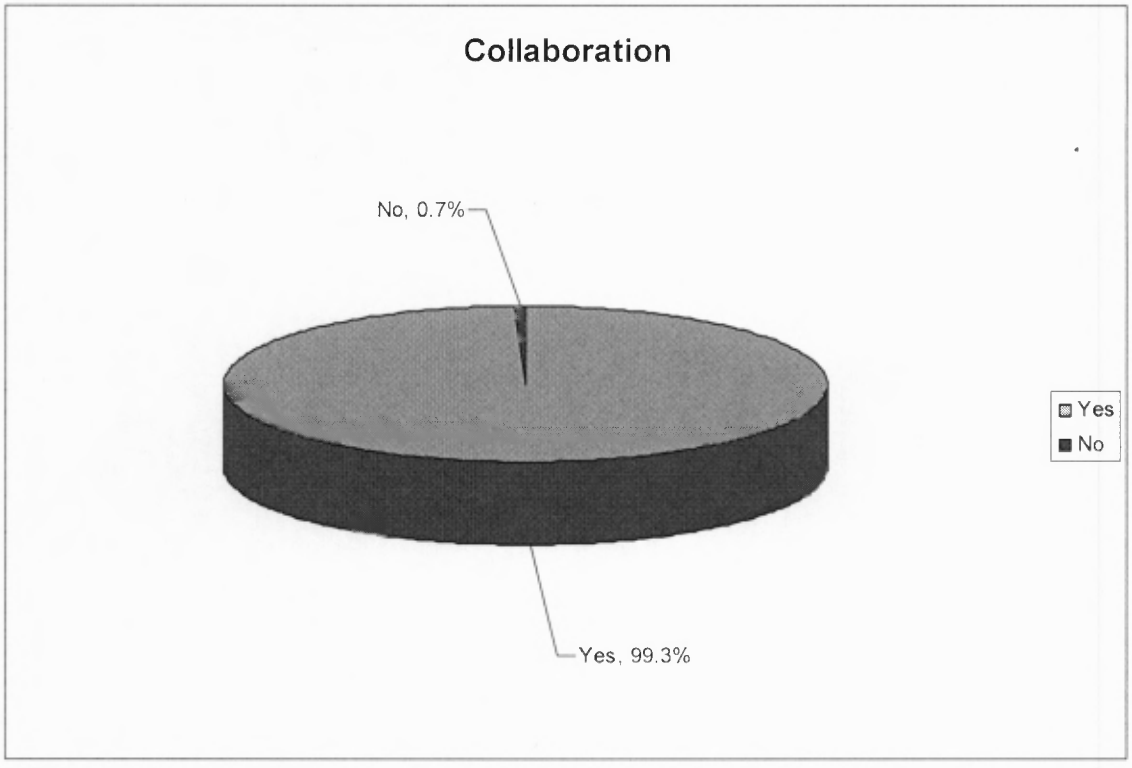

Chart 5-13: Collaboration in knowledge creation, use and sharing.

5.3.11 Ways of Collaboration

When an organization collaborates with other organizations in creating, disseminating and sharing knowledge, there are specific ways in which this can be done. The respondents were asked to provide examples of how their organizations collaborate with other organizations, and to assist them in answering, they were provided with various possibilities such as joint research projects, joint training programmes, joint seminars/workshops, exchange of research findings, exchange of information and

exchange of staff (cf. question 15b, Appendix A). The responses received are shown in table 5.16 below.

Ways of collaboration						
Means of collaboration	Joint research projects	Joint training programmes	Joint workshops & seminars	Exchange of research findings (other category)	Information exchange	Staff exchange
Yes	87.5%	93.8%	99.3%	91.7%	97.9%	84.7%
No	12.5%	6.3%	0.7%	8.3%	2.1%	15.3%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5-16: Collaboration in knowledge creation, sharing and dissemination (n=144)

Nearly all respondents (99.3%) indicated the use of joint workshops/seminars as a way in which their organizations collaborate with other organizations in sharing knowledge. The other means of collaboration that were generally followed were information exchange (97.9%); joint training programmes (93.8%), exchange of research findings (91.7%) (This response was given as an answer in the "other" category); joint research programmes (87.5%), and exchange of staff (84.7%).

The responses clearly indicate that the organizations investigated use a variety of methods in almost equal proportions to collaborate with other organizations in knowledge creation and sharing. Respondents in different organizations gave specific examples of other organizations they collaborated with either within Kenya or outside Kenya. For example, respondents at the Kenya Industrial Property Institute generally collaborate with the World Intellectual Property Office, the African Intellectual Property Office and the European Intellectual Property Office. The respondents from the Kenya Agricultural Research Institute in turn generally collaborate with the International Livestock Research Institute and other international organizations which conduct research in food and agriculture like the United Nations' Food and Agriculture Organization.

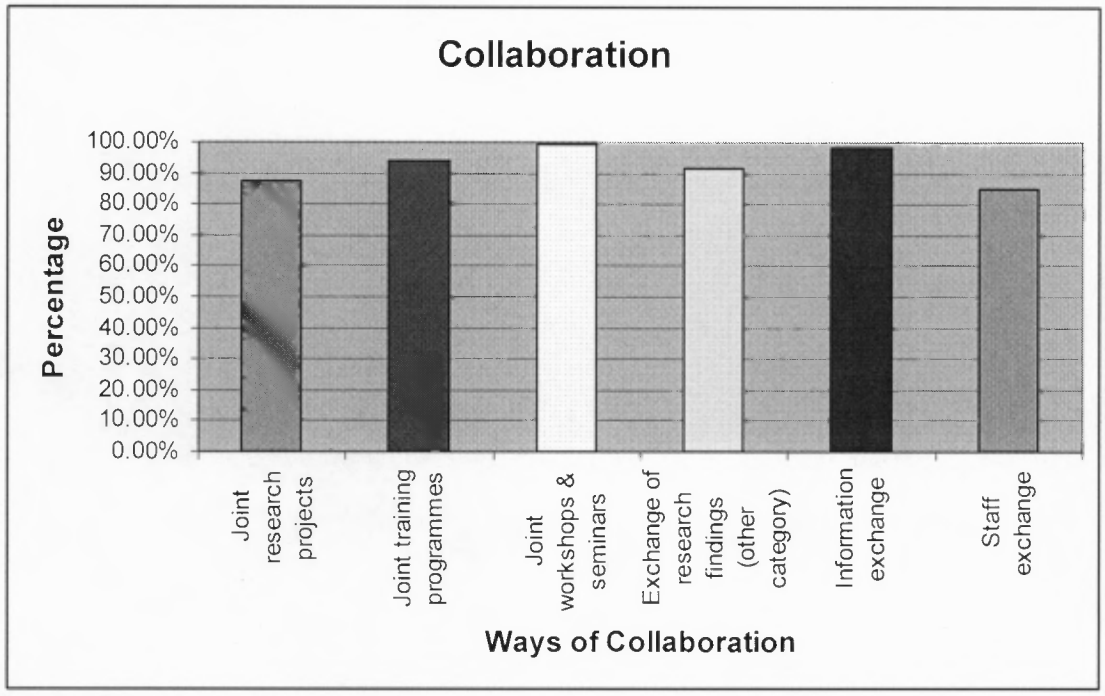

Chart 5-14: Means of collaboration

5.4 Information and Communication Technologies (ICTs)

Information and communication technologies have generally been accepted and recognized as enablers of the processes of knowledge management. The technologies enable fast acquisition of knowledge, fast storage of knowledge and fast retrieval of knowledge. Organizations which practice knowledge management have been known to invest in and update information and communication technologies for managing their knowledge.

5.4.1 Investment in Information and Communication Technologies

Davenport and Prusak (1998: 166), while cautioning against a technology-centred knowledge management approach, also argue that a basic technology infrastructure is a necessary component for successful knowledge management projects. Although a successful knowledge management programme involves more than merely deploying the best information technology products available in the market, it is important to embrace information technology as an enabler and facilitator of the process. Because of the role that information technology can play in knowledge management, it is important to invest in basic information technology structures when setting up a

knowledge management programme (cf. Chapter three, section 3.7). The researcher therefore asked respondents if they thought their organizations had invested adequately in information and communication technologies (ICTs) (cf. question 16a, Appendix A). The responses that were received are shown in table 5.17 below.

ICTs investments	% of ICTs investments
Adequate	53.5%
Not adequate	45.8%
No opinion	0.7%
Grand Total	100.0%

Table 5-17: Investments in information and communication technologies (n=144)

Slightly over half (53.5%) of the respondents indicated their organizations had adequately invested in ICTs, whereas 45.8% indicated they did not think their organizations had done so. A small percentage (0.7%) of the respondents said they had no opinion on whether or not their organizations had invested adequately in information and communication technologies.

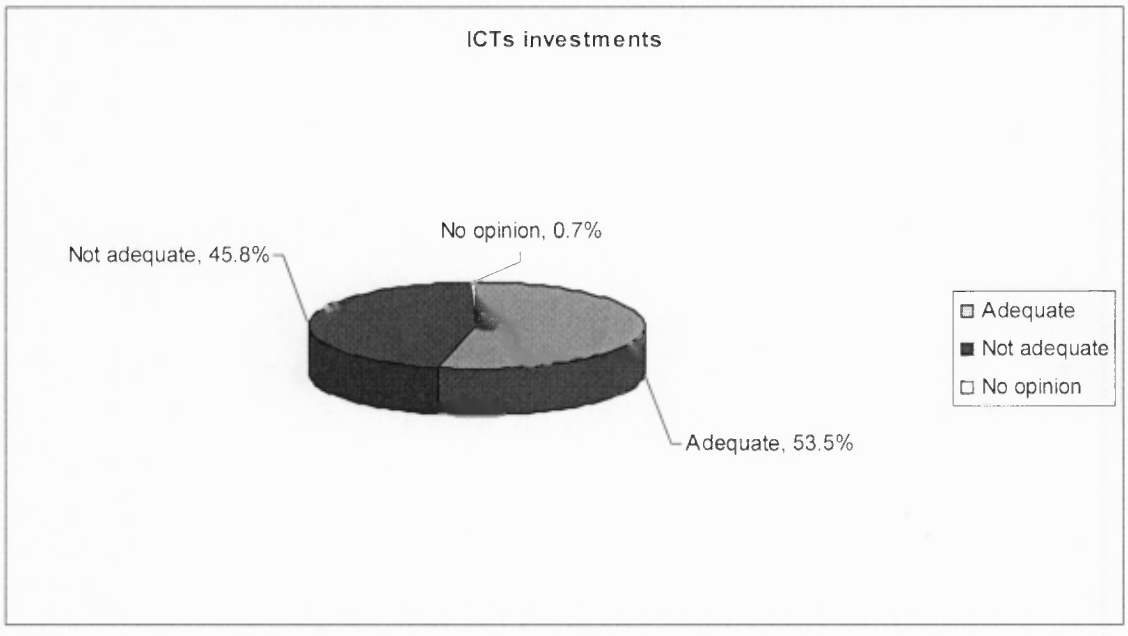

Chart 5-15: Levels of investments in information and communication technologies

Further probing and discussions held with a number of respondents indicated that a great deal still needed to be done in as far as the issue of the adequate investment in information and communication technologies was concerned. They said that although

their organizations had invested sufficiently in the basic information and communication technologies, the technologies were outdated and not well maintained and were thus not adequate for the purpose of running an efficient knowledge management programme. More so, the technologies invested in were not specifically geared to running knowledge management system software.

5.4.2 Types of Information and Communication Technologies (ICTs) Invested in

Based on the Sena and Shani's (1999:**8**-9) list of information and communication technologies that they suggest successful knowledge-intensive organizations should utilize (cf. also 3.3), the researcher asked the respondents to indicate which of these technologies their organizations had invested in (cf. question 16b, Appendix A). The respondents were familiar with most of the technologies mentioned to them except "groupware" and "intranets." The researcher therefore explained to the respondents that groupware as a term used to describe the electronic technologies that support person to person collaboration, and that it includes e-mail, electronic meeting systems, desktop videoconferencing and systems for workflow and business process reengineering (Coleman, 1999:**12**-2). The researcher further informed the respondents that an intranet is a computer network that is specific to an organization and that it uses technologies very similar to those used by the Internet (Skyrme, 1999:19).

ICTs investments	Telephones	Fax machines	Computers	Groupware	Corporate intranets	The Internet
Invested in	53.5%	52.1%	54.2%	50.0%	52.1%	54.2%
Not invested in	46.5%	47.9%	45.8%	50.0%	47.9%	45.8%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5-18: Types of information and communication technologies invested in (n=144)

The choice of the specific types of technologies given to the respondents and the responses received are as shown in table 5.18 above, and it can be seen that 54.2% of the respondents said their organizations had invested in computers and the Internet. Other technologies the respondents said their organizations had invested in are telephones, 53.5%, fax machines and corporate intranets, 52.1%; and the various technologies that could be referred to as groupware, 50.0%.

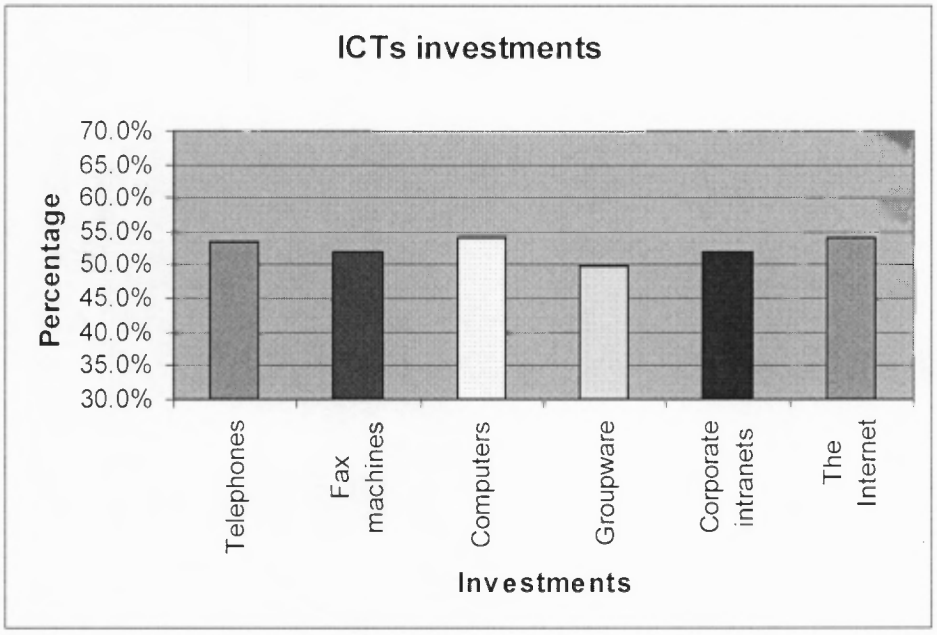

Chart 5-16: Types of information and communication technologies invested in

5.4.3 Access to the Internet

The researcher further wanted to specifically establish the extent to which employees of the organizations have free access to and use the Internet (cf. question 17, Appendix A). The Internet may not necessarily be the best source of information, but it can be an enabler and is particularly effective as a knowledge sharing tool both in a national, organizational and international context. Responses received regarding the frequency of access to the Internet are shown in table 5.19 below.

Frequency of Internet access	% of frequency of access
2x month	1.4%
1x month	6.9%
4x week	2.8%
3x week	6.9%
1x week	6.9%
Everyday	67.4%
Never	7.6%
Grand Total	100.0%

Table 5-19: Frequency of access to free Internet (n=144)

The Majority of the respondents (67.4%) indicated that they had access to the Internet in their organizations on a daily basis, only 6.9% indicated once a week, or thrice a week, 2.8% said four times a week, 1.4% said twice a month and 7.6% said they don't have free access to the Internet in their organizations. The researcher observed that respondents whose offices are near or next to the main administration block generally had better access to the Internet. The Internet is an investment and budgetary decisions are generally made by administrators in the main administration offices.

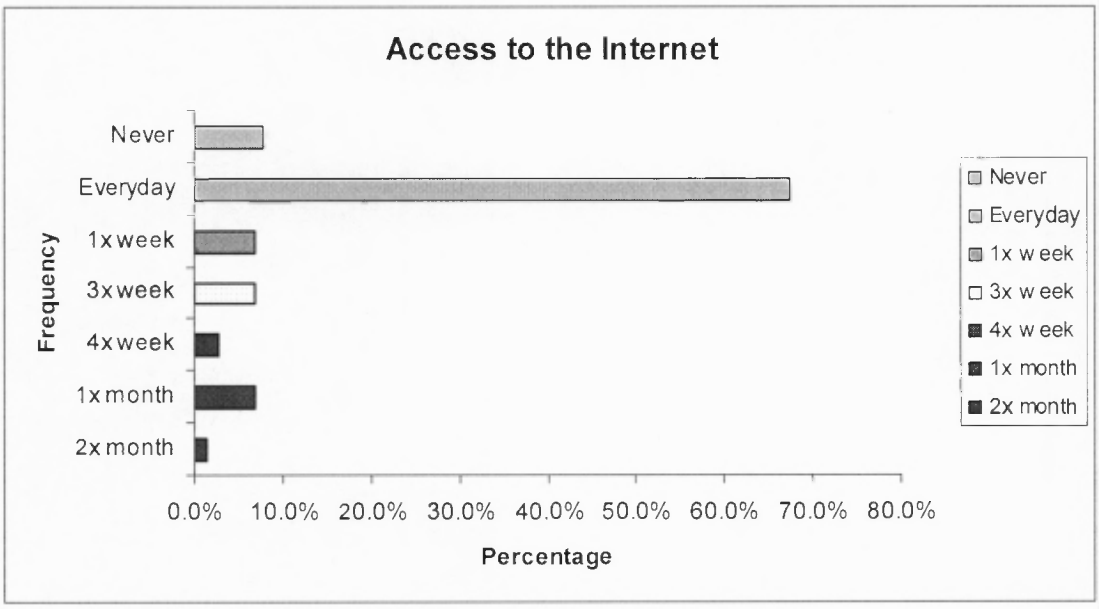

Chart 5-17: Frequency of access to the Internet (n=144)

A number of respondents indicated that they had daily access to the Internet because of their rank in their organizations. It appeared to the researcher that the higher the rank of the respondent, the greater the frequency of free access to the Internet. While high ranking managers had access to the Internet on their desks, the lower ranking officers had to go to a general area such as the library or computer room to obtain access to the Internet. Many respondents pointed out that access points in their organizations were not adequate, hence, limiting the frequency of free access to the Internet.

5.5 Learning Organization

The nature of a "learning organization" is discussed in detail in the literature review section of this study (cf. chapter three, section 3.9). In this section, the respondents'

views on whether their organizations were "learning organizations" or not, are presented. Wiig (1994:231) identifies the two most common approaches to organizational learning as firstly whether the organization identifies opportunities for internal changes from learning on-the-job, and secondly whether it encourages creative behaviour in its employees.

In an organization where learning takes place, employees are likely to acquire new skills, new knowledge and new capabilities. A learning organization is generally also in a better position not only to generate new competencies, but also improve on old competencies. The researcher explained to every respondent the meaning of a "learning organization" before asking them to indicate if they thought theirs were "learning organizations" (cf. question 18a, Appendix A). The responses that were received are shown in table 5.20 below.

Learning organisation	Percentage
Yes	95.1%
No	4.2%
No opinion	0.7%
Grand Total	100.0%

Table 5-20: Learning organization (n=144)

It can be seen that 95.1% of the respondents said their organizations were learning organizations, 4.2% said they did not consider theirs to be learning organizations and 0.7% said they did not have any opinion on the issue (cf. also chart 5.19 below).

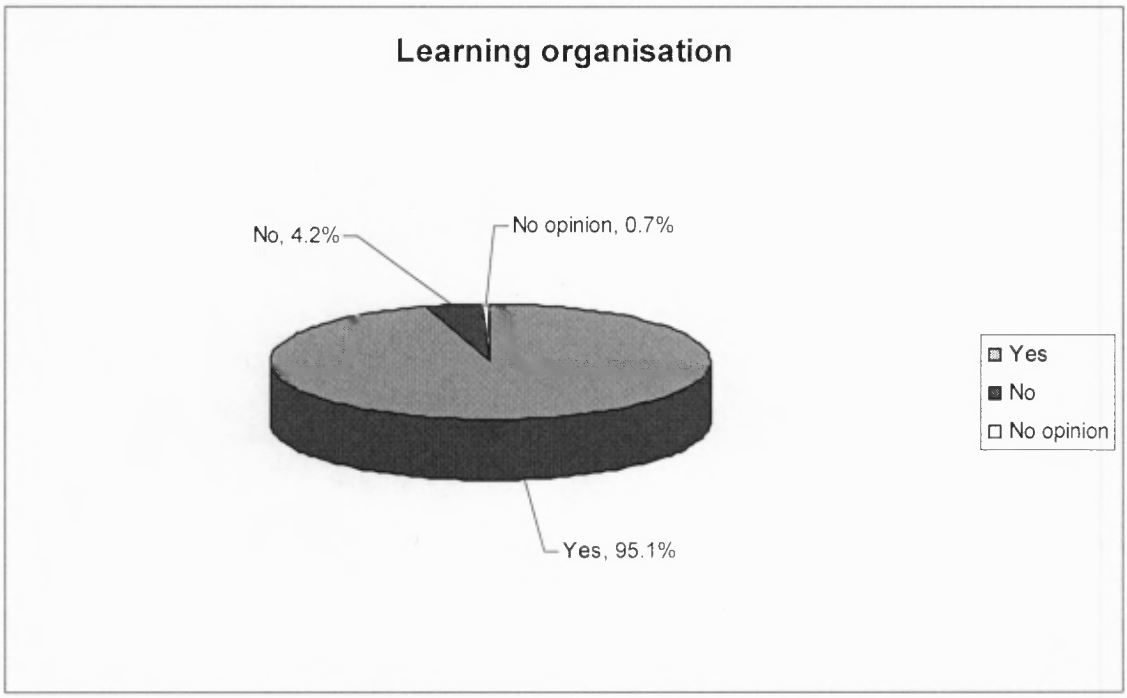

Chart 5-18: Learning organisation

5.5.1 Indicators of a Learning Organization

Learning in an organization does not automatically happen, but must be facilitated by organizational management in one way or the other. (cf. 2.4.1 and 3.9). Respondents were thus further probed and asked (cf. question 18b, Appendix A) to comment on a number of factors that are generally accepted to be good indicators of whether an organization is a "learning" one or not (cf. 2:4.1 and 3:9). Essentially, the researcher wanted to establish how learning is encouraged and/or facilitated in the organizations investigated. Factors which foster learning in an organization include the free exchange and flow of information, commitment to learning, valuing people, fostering a climate of openness and trust, and learning from experience. The researcher thus supplied the respondents with learning indicator statements and asked them to select those that applied to their organizations. The responses received are shown in table 5.21 below.

Ways of encouraging learning	On-off-the-job learning	Paid-off time given	Creativity encouraged	Learning of employees facilitated	Rewards for creativity	Knowledge/info sharing encouraged

Yes	93.80%	93.10%	93.10%	70.10%	56.90%	94.40%
No	6.30%	6.90%	6.90%	29.90%	43.10%	5.60%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-21: Indicators of a learning organization (n=144)

The vast majority of the respondents indicated that the following aspects were encouraged in their organizations as a way of facilitating organizational learning: information and knowledge sharing (94.4%), on and off-the job learning encouraged (93.8%), paid time-off to learn new skills (93.1%), and the encouragement of creativity (93.1%). A substantive majority (70.1% of the respondents indicated that their organizations facilitated and encouraged further learning of all employees, while 56.9% of the respondents indicated that their organizations rewarded creative employees. It is thus clear that the respondents were of the opinion that their organizations foster learning in a number of ways.

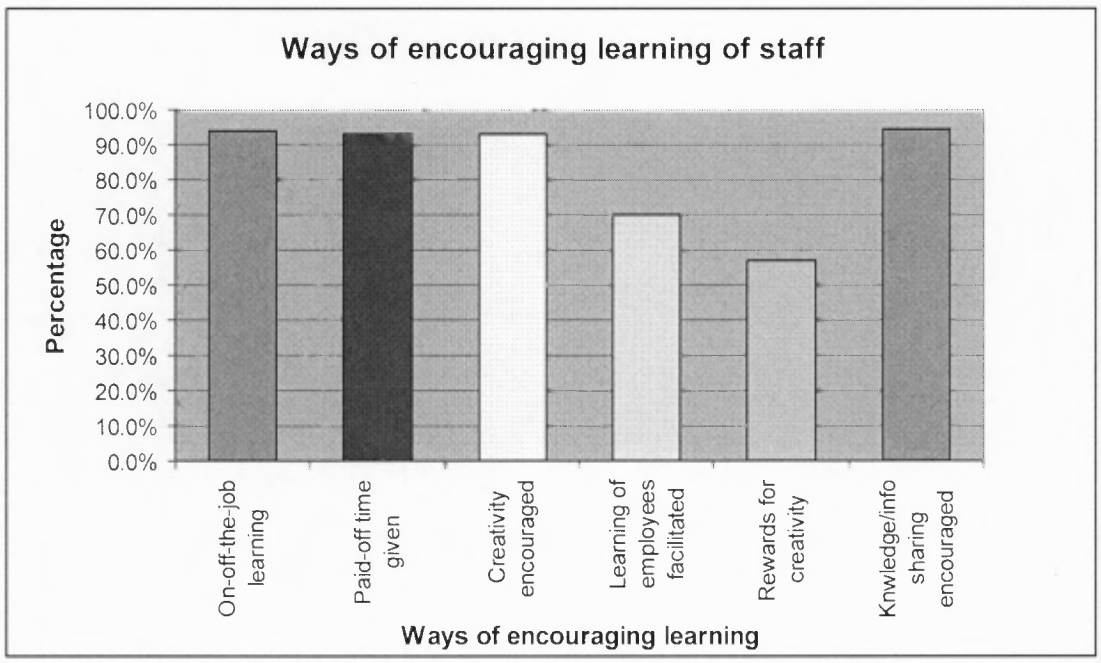

Chart 5-19: Indicators of a learning organization

5.5.2 Types of Training Opportunities that are Available

Training enables employees of an organization or a country to acquire new knowledge, competencies and capabilities (cf. chapter three, section 3.9). Drucker (2002:194) contends that a country which trains its citizens further enables its labour force to attain world-class productivity. According to Cutcher-Gershenfeld and Ford

(2005:25), training of organizational employees illustrates the value an organization places on knowledge-creation and continuous improvement strategies that develop the adaptive capabilities of its workforce.

The respondents were asked to state the types of training opportunities available in their organizations (cf. question 19, Appendix A) and to ensure that they understood what the researcher meant, he explained training opportunities he put to them. On-the-job training referred to any type of training organized within the organizations such as, in-house training or training received while the employee is working. Off-the-job training meant any type of training/course an employee may attend outside the organization. Workshops and seminars refer to workshops which may be organized by the employer within the organization or seminars organized elsewhere and where employees are sponsored by their organizations to attend. The responses received to this question are shown in table 5.22 below.

Training opportunities	On-the-job training	Off-the-job training	Workshops or Seminars
Yes	100.0%	98.6%	100.0%
No	0.0%	1.4%	0.0%
Grand Total	100.0%	100.0%	100.0%

Table 5-22: Training opportunities available (n=144)

All the respondents (100.0%) said that on-the-job training and workshops and/or seminars were provided by their organizations, while 98.6% of the respondents indicated that off-the-job training was made available by their organizations. It is clear that all the organizations endeavoured to encourage their employees to acquire new skills for themselves by way of encouraging and facilitating training.

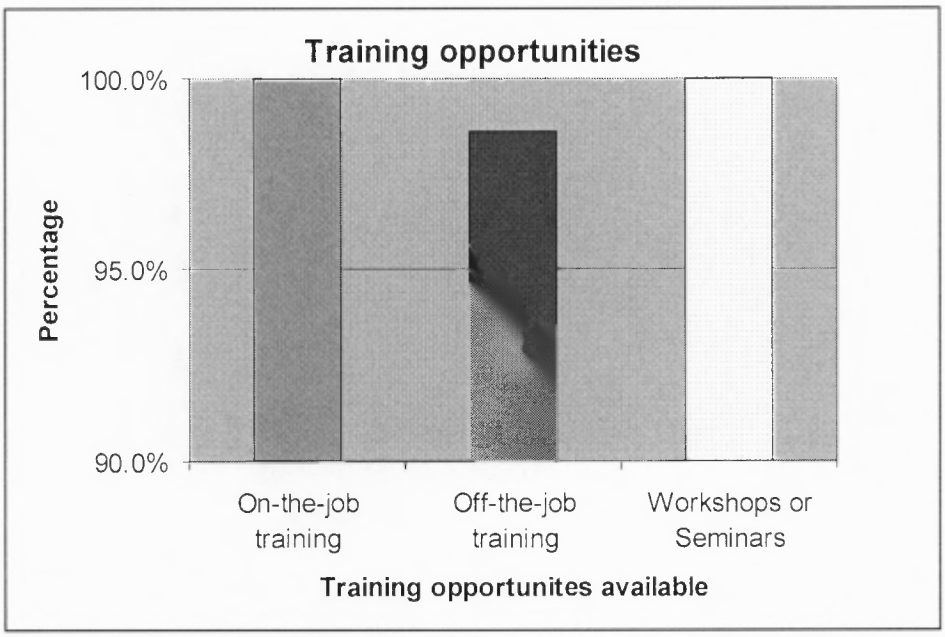

Chart 5-20: Training opportunities available.

5.5.3 Frequency of Training Activities

It is possible for an organization to engage in training activities but not sufficiently frequently to enable employees to acquire adequate new knowledge, skills, competencies and capabilities which may enable them to easily adjust in a changing organizational and global environment. The researcher thus wanted to establish from respondents how frequently their organizations engaged in staff training activities (cf. question 20, Appendix A). The respondents were given four choices from which to select answers and the responses received are shown in table 5.23 below.

Frequency of organizational staff training activities	Percentage to nearest whole numbers
Very often	35.4%
Often	57.6%
Rarely	6.9%
Grand Total	100.0%

Table 5-23: Frequency of organizational training activities (n=144)

More than half the respondents (57.6%) indicated that their organizations engaged frequently in staff training activities, 35.4% indicated their organizations engaged in staff training activities very frequently, while only 6.9% indicated that their organizations rarely engaged in staff training activities. This result further reinforces the organizations' commitment to training.

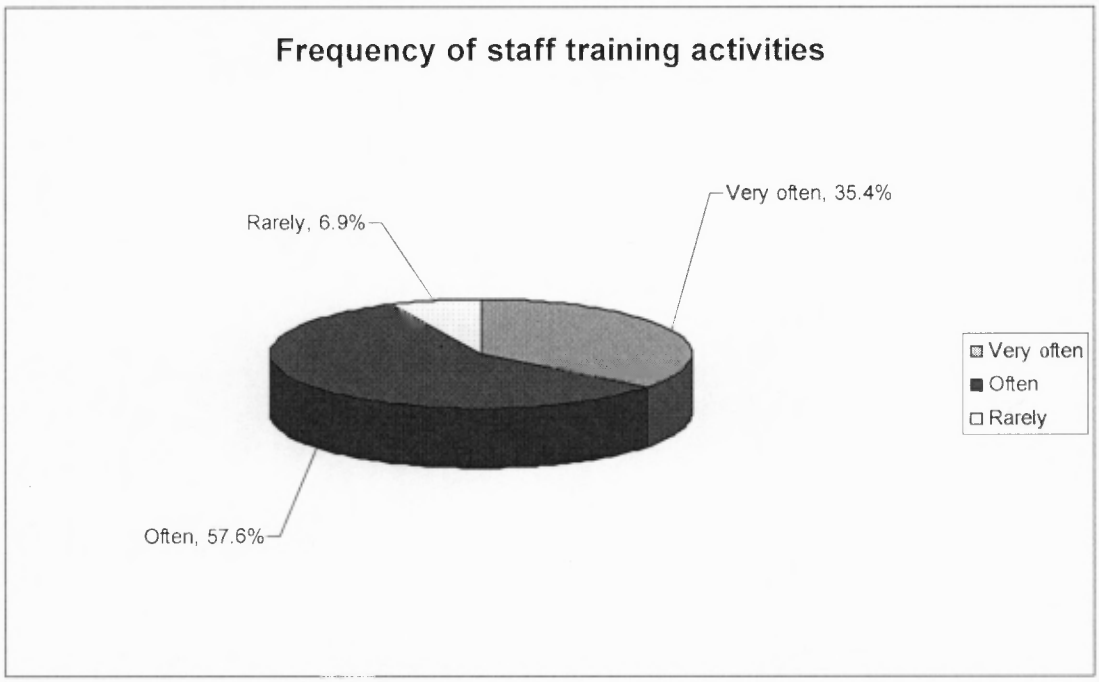

Chart 5-21: Frequency of staff training activities

5.5.4 Training/course Attendance

Respondents were asked to state the number of times they had personally attended relevant training or courses that had lasted for more than half a day during the two years preceding the time of the survey (cf. question 21, Appendix A). The responses received are shown in table 5.24 below.

Training attendance	Percentage to nearest whole numbers
More than four times	56.3%
Thrice	13.9%
Twice	15.3%
Once	10.4%
Nil	4.2%
Grand Total	100.0%

Table 5-24: Employee training/course attendance (n=144)

More than half the respondents (56.3%) indicated they had attended relevant training or courses more than four times during the last two years preceding the survey. Only 13.9% indicated three times, 10.4% once, and 4.2% said they had not attended any relevant training or courses during the last two years. This response again indicates that the organizations are committed to training of employees.

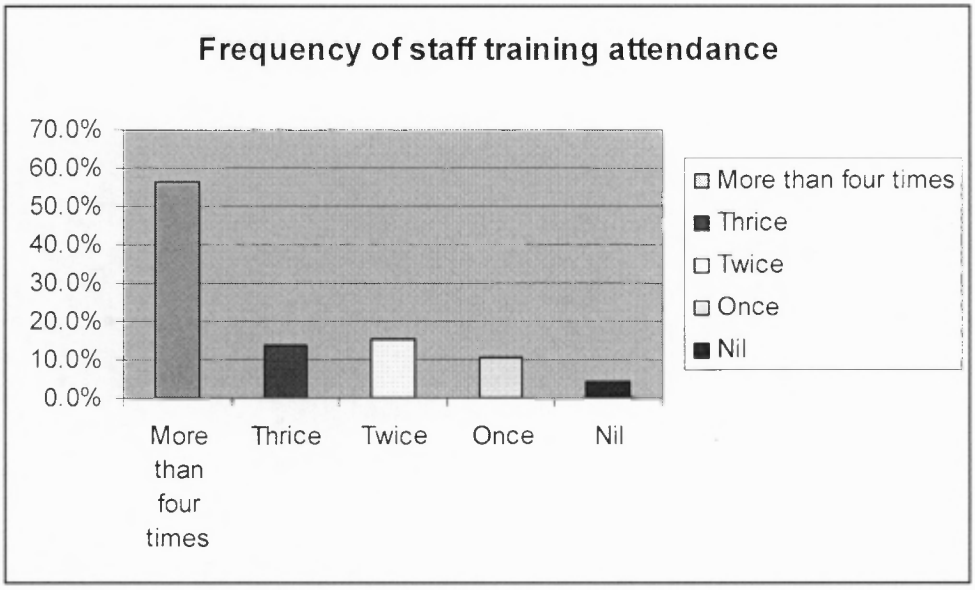

Chart 5-22: Training /course attendance of respondents

5.5.5 Emphasized Skills when Hiring New Employees

In an organization that is operating in a knowledge environment, newly recruited employees are expected to have certain basic knowledge, skills and competencies which may enable them to quickly adjust and work productively in such an environment (cf. Chapter three, section 3:9.1). Polanyi (1958:49) contends that the aim of a skilful performance is achieved by observance of a set of rules which are not known as such to the person following them. Corcoran and Jones (1997:31-36) list a number of skills that they think knowledge workers should possess in order to succeed in a knowledge environment. Such skills and knowledge would then form the basis for newly recruited employees to easily acquire specific skills and capabilities required for knowledge creation, knowledge processing and knowledge sharing. The researcher provided the respondents with a list of basic skills and asked them to rate the emphasis placed by their organizations on these skills when recruiting new employees (cf. question 22, Appendix A). They were further asked to rank the skills according to a 1-5 scale where the most important and most emphasized skill was to be ranked 5 and the least important and least emphasized 1. The responses received are shown in table 5.25 below.

Relative rating of skills	Communication skills	Computer skills	Information literacy skills	Numeric skills	Social skills	Entrepreneurial skills
Five	37.5%	36.8%	28.5%	15.3%	16.7%	19.4%
Four	29.2%	25.7%	34.0%	34.7%	31.3%	22.2%
Three	21.5%	24.3%	26.4%	31.3%	25.7%	22.9%
Two	10.4%	6.9%	8.3%	13.9%	15.3%	19.4%
One	1.4%	6.3%	2.8%	4.9%	11.1%	16.0%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5-25: Important skills emphasized when hiring new staff (n=144)

Communication was the most emphasized and considered the most important skill by the respondents (37.5% very important rating), and this was closely followed by computer skills, (36.8%). The other skills were rated in importance as follows: information literacy skills (28.5%), entrepreneurial skills (19.4%), social skills (16.7%) and numeric skills (15.3%).

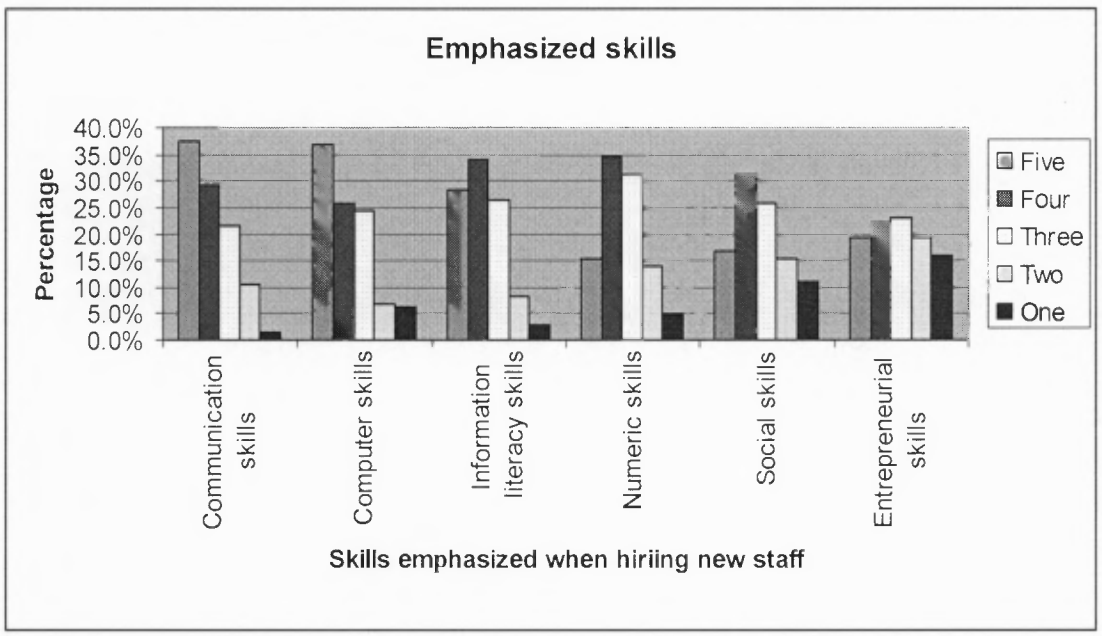

Chart 5-23: Important skills emphasized when hiring new employees

5.5.6 The Skills, Knowledge and Capabilities that are Acquired over Time

In a learning organization, employees are likely to acquire new knowledge, skills and capabilities as a result of working for that organization for a period of time (cf.3.9.1).

Respondents were thus asked to select the specific knowledge, skills and capabilities they had acquired as a result of working for their organizations from the list of possible skills provided by the researcher (cf. question 23, Appendix A). The responses received are shown in table 5.26 below.

Skills acquired	Managerial skills	Computer skills	Problem solving skills	Public relations skills	Marketing skills	Communication skills	Social skills	Entrepreneurial skills
Acquired	93.8%	95.8%	95.8%	87.5%	46.5%	95.8%	87.5%	54.9%
Not acquired	6.3%	4.2%	4.2%	12.5%	53.5%	4.2%	12.5%	45.1%
Grand Total	100%	100%	100%	100%	100%	100%	100%	100%

Table 5-26: Skills acquired by respondents (n=144)

Almost all the respondents (95.8%) indicated they had acquired communication skills, problem solving skills and computer skills as a result of working for their organizations over the years. Since all the respondents were in some or other managerial positions, it was not surprising that 93.8% indicated they had acquired managerial skills. A large proportion (87.5%) also indicated they had acquired public relations and social skills as a result of working for their organizations over the years. More than half (54.9%) of the respondents indicated they had acquired entrepreneurial skills, and 46.5% of the respondents indicated they had acquired marketing skills. The researcher obtained the impression that the lower number of respondents that had acquired entrepreneurial and marketing skills was because the organizations investigated were research-oriented and not profit or market-oriented.

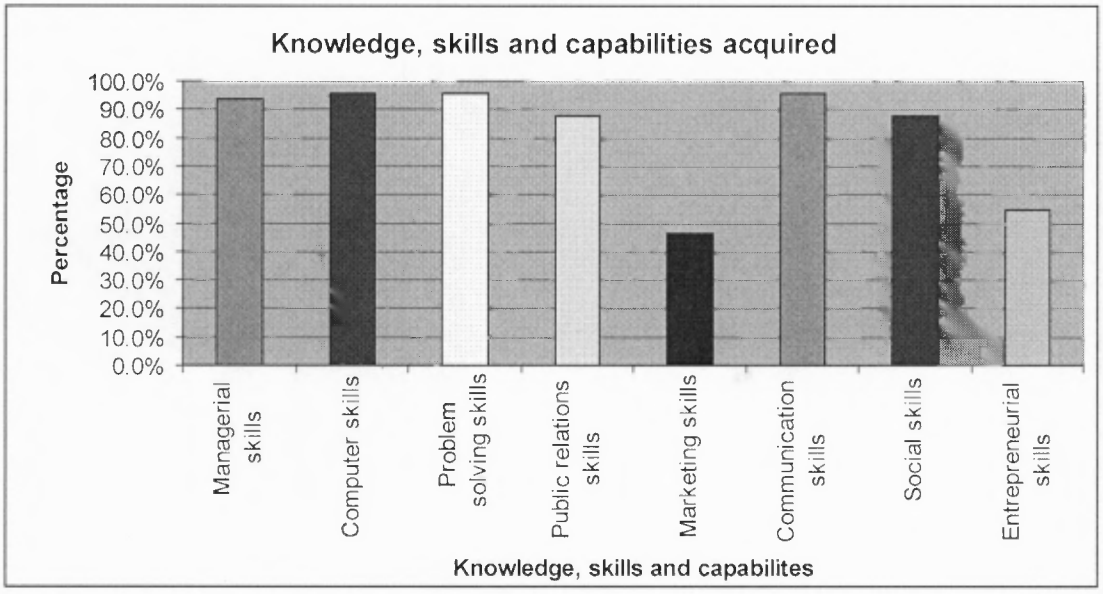

Chart 5-24: Knowledge, skills and capabilities acquired by respondents

5.5.7 Job Satisfaction in Relation to Retention of Employees

When an organization is not able to retain its employees, it loses considerable knowledge that experienced employees have acquired over time (cf. 3.3). Job satisfaction goes hand-in-hand with employee retention because if an employee experiences job satisfaction he/she would be less inclined to leave his/her employer. Respondents were thus asked to rank levels of job satisfaction as a probable indication of employee retention in their organizations (cf. question 24, Appendix A) and the responses are shown in table 5.27 below.

Job satisfaction in relation to employee retention	Percentage
Very high	4.9%
High	19.4%
Adequate	47.2%
Low	23.6%
Very low	4.9%
Grand Total	100.0%

Table 5-27: Levels of job satisfaction in relation to retention of employees (n=144)

Slightly less than half (47.2%) the respondents indicated job satisfaction and employee retention were adequate in their organizations, 23.6% indicated they found

these factors to be low, 19.4% said they were high and only 4.9% said they were very high or very low.

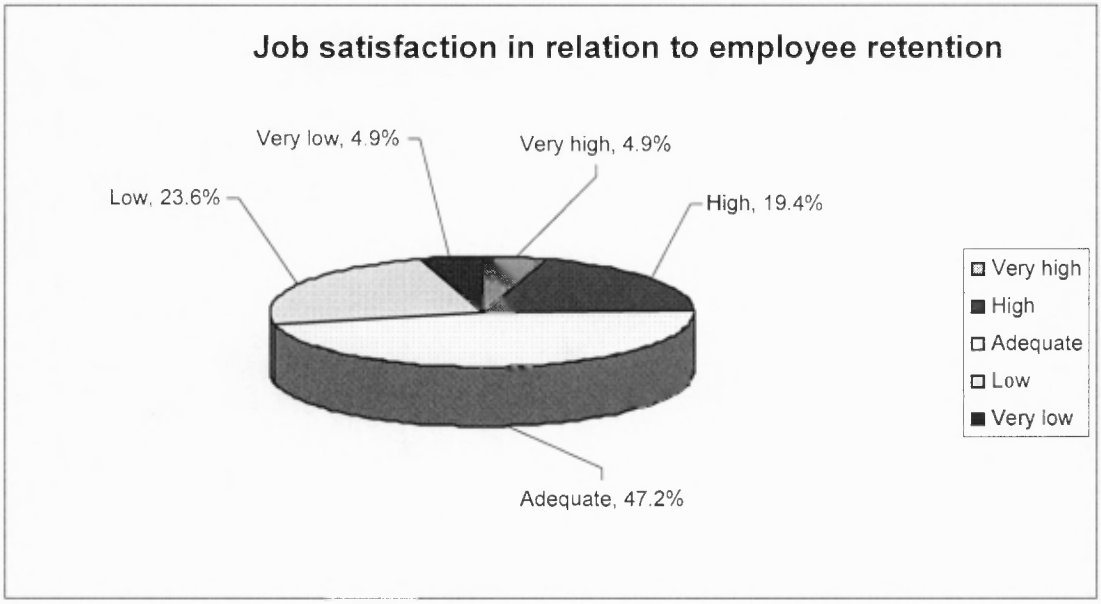

Chart 5-25: Levels of job satisfaction in relation to employee retention

5.5.8 Management Structure of Organizations and Knowledge Flow

Nonaka and Takeuchi (1995:241) discuss different types of organizational structures with regard to enhancing or impeding the free flow of knowledge. Some organizational structures encourage knowledge sharing and the free flow of knowledge within and beyond organizational boundaries while others do not (cf.3.6.2). According to Nonaka and Takeuchi (1995:241), the level of bureaucracy can affect knowledge creation and the flow of knowledge. They state for example that highly bureaucratic organizations may be ideal for using knowledge, but not for creating knowledge and enhancing its flow; i.e. such a structure is more suitable to dealing with explicit rather than tacit knowledge. A question was thus included to gauge the level of bureaucracy in the organizations investigated (cf. question 25, Appendix A).

The word "bureaucracy" was not mentioned in the question as this could be a sensitive issue in Kenyan parastatal organizations and skewed and invalid responses might have been obtained. To overcome this problem, different types of management structures that depicted various levels of bureaucracy were given to the respondents to

select the one that was most typical to their organizations. The responses received are as shown in table 5.28 below.

Organizational management structures	Percentage
Top-bottom	59.7%
Middle-top-bottom	29.9%
Mechanistic	2.1%
Organistic	8.3%
Grand Total	100.0%

Table 5-28: Organizational management structures (n=144)

The majority of the respondents (59.7%) said their organizations had a top-bottom managerial structure, 29.9% said their organizations had a middle-top-bottom structure, 8.3% said their organizations had an organistic managerial structure and 2.1% said their organizations had a mechanistic managerial structure

The top-bottom organizational structures are characterised by the flow of orders and commands from top to the bottom, they generally favour bureaucracy, which in turn curtails knowledge creation and sharing in an organization. Such a structure does not encourage sharing of information and knowledge across hierarchical boundaries. Decisions are made at the top and communicated to the bottom for implementation without any question or amendment at the bottom level. From the responses, it was clear the majority of the organizations followed a more bureaucratic structure, and the researcher thus interpreted this to mean that in the majority of instances, the management structures were not conducive to encouraging the flow and sharing of knowledge. This would further imply that the majority of the organizations were not operating in a knowledge environment where employees at all levels are expected to create and share knowledge all the time.

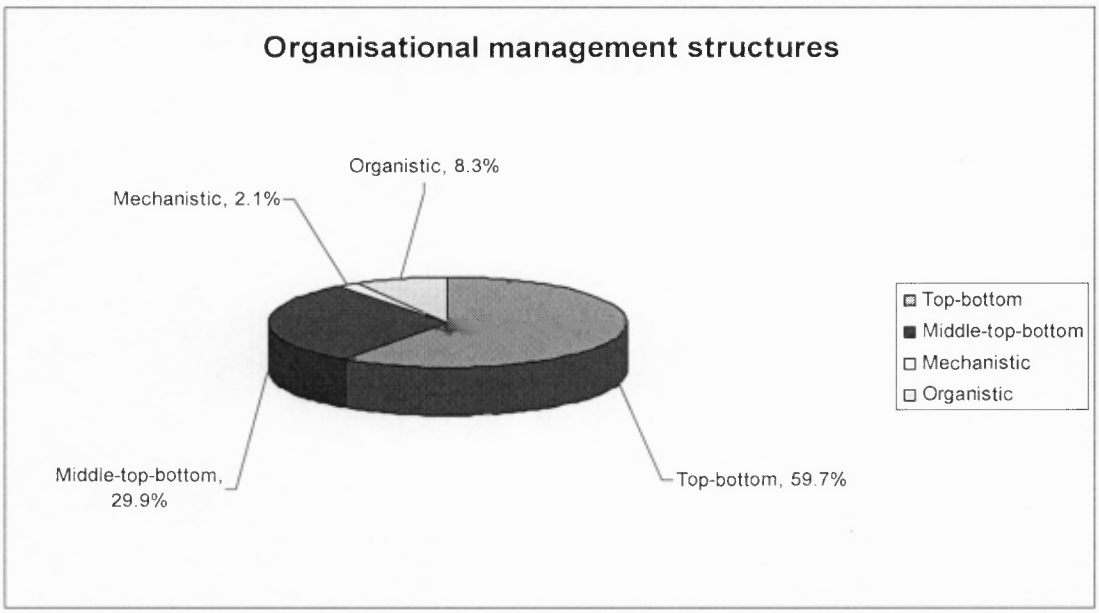

Chart 5-26: Organisational management structures

5.6 Organizational Knowledge Management Challenges

Knowledge managers and organizational knowledge management programmes face numerous challenges and a number of these have been enumerated among others by Wiig (1994:13), Calabrese (2004:242), Gupta, Lyer and Aronson (2000:20), Teo (2005:154), Hansen, Nohria and Tieney (1990:113), Ellis (2005:18), Ribiere (2005:103), Shadbolt and Milton (1999:312) and Birknishaw (2000:11) (cf.3:10). Identifying the benefits of knowledge management and measuring the value of knowledge management programmes is generally regarded as being the most serious of all the challenges that knowledge managers and organizational knowledge management programmes face (cf. 3:10). Even those organizations which have embraced knowledge management still find the practice puzzling and not well understood. The researcher thus wanted to discover the kind of challenges that the organizations investigated in Kenya face in managing knowledge.

5.6.1 Perceived Benefits of Knowledge and Information Management

The first aspect the researcher wanted to establish was what benefits the respondents perceive that a knowledge and/or an information management programme has or would have for their organizations (cf. question 26, Appendix A). The researcher wished not only to identify benefits common with the international view, but also those unique to Kenya. He therefore created a check list of possible benefits which he derived from those listed by Rao as cited by Grossman (2006:242), Wiig (1993:131) and Gottschalk (2002) (cf. also3.10). These benefits included amongst others factors such as access to knowledge, improved economic returns, better decision making and overall improved organizational effectiveness, minimising mistakes, less redundancy, quicker problem solving, reduced research development costs, and enhanced customer relations. Other benefits that were identified include improved service and faster delivery times, competitive advantage, ability to direct work to skilled specialists, quality control and client collaboration.

The checklist was presented to the respondents for comment and selection of the most beneficial aspects that could accrue from the good practices of knowledge and information management in their organizations. The responses received are shown in table 5.29 below.

All the respondents (100%) indicated they thought the fast acquisition of useful information was an important benefit that could be derived from the active practice of knowledge and information management, while 99.2% indicated that faster acquisition of new skills were important benefits. Other benefits that respondents thought could accrue from the practice of knowledge and information management were fast acquisition of useful knowledge (99.3%), collaborative problem solving (98.6%), better resource management (97.9%), learning to work together (97.2%), fast decision making (97.9%), increasing learning enthusiasm (96.5%), faster risk identification (89.6%), and reduction of cost of contingency plans (80.6%). Job satisfaction was seen as a possible benefit by 90.3% of the respondents, with 93.1% seeing better public relations as a benefit and 89.6% seeing high staff motivation as a benefit. A slightly smaller proportion (73.6%) of the respondents thought it may result in high staff retention, and 52.8% indicated that good knowledge management

practices may result in higher profits. The issue of profit making is not a priority in the organizations investigated and thus not of great importance to the respondents.

Value	Fast decision making	High staff retention	High profits	Job satisfaction	High motivation	Faster acquisition of new skills	Faster risk identification	Reduction of cost of contingency plans	Fast acquisition of useful knowledge	Fast acquisition of useful information	Collaborative problem solving	Better PR services	Better resource management	Learning to work together	Increasing learning enthusiasm
Important	97.9%	73.6%	52.8%	90.3%	89.6%	99.3%	89.6%	80.6%	99.3%	100.0%	98.6%	93.1%	97.9%	97.2%	96.5%
Not important	2.1%	26.4%	47.2%	9.7%	10.4%	0.7%	10.4%	19.4%	0.7%	0.0%	1.4%	6.9%	2.1%	2.8%	3.5%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5-29: Perceived important benefits of good practices of knowledge and information management (n=144)

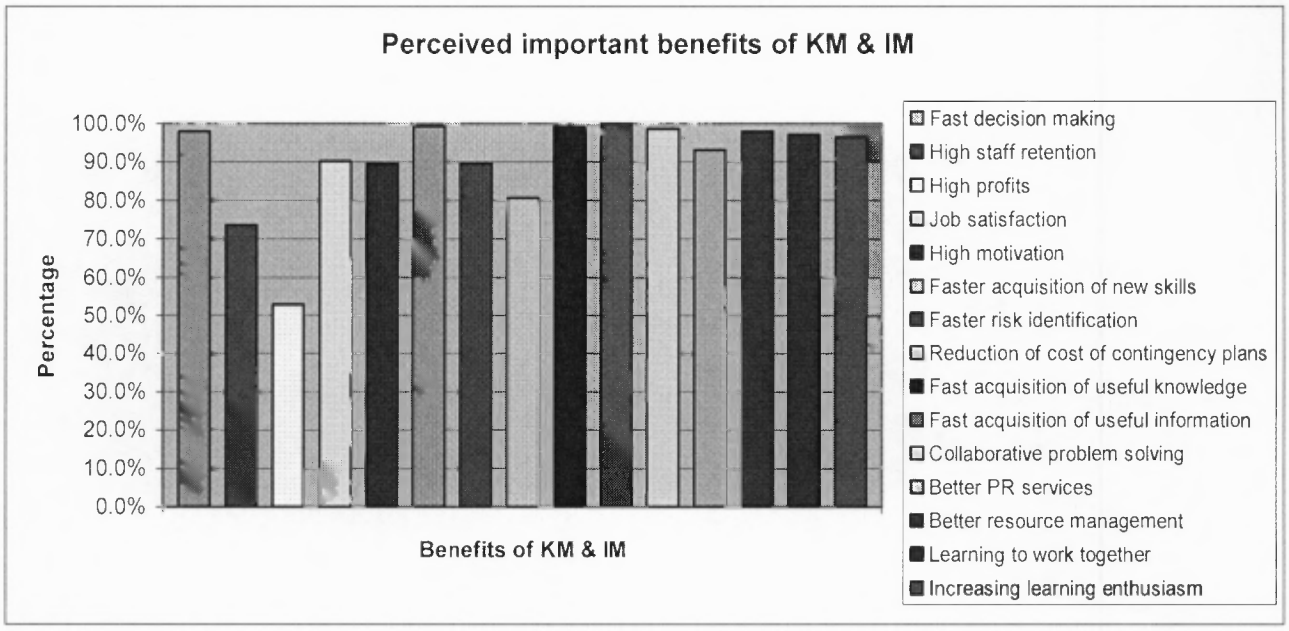

Chart 5-27: Perceived benefits of good practices of knowledge and information management

5.6.2 Criteria for Measuring the Value of Knowledge and Information Management

The maxim of "you can't manage what you can't measure" seems to underlie much current management thought, see for example (Wilson, 2002, and Van Buren, 1999:72). It is therefore the duty of managers to provide criteria against which the success of knowledge management projects can be measured (Saint-Onge and Armstrong, 2004:47). Saint-Onge and Armstrong propose criteria such as the strength of human capital, structural capital and customer capital as being good indicators to measure the value of knowledge. Du Toit (1994:163) and others however point out that these criteria have not as yet been universally accepted as ideal for measuring the value of knowledge and information management (cf. 3.10). Gupta, Lyer and Aronson (2000:20) regard the lack of criteria for measuring the value of knowledge as a major challenge to knowledge management. Van Zolingen, Streumer and Stooker (2201:177) while underscoring the importance of tacit knowledge, concede it is difficult to measure.

The researcher took all these factors into consideration and while acknowledging that criteria for measuring the value of knowledge in particular have generally been difficult and elusive to agree on, he wanted to establish if this was also true in the

organizations he investigated. He further wished to establish if they used any specific criteria for that purpose (cf. question 27, Appendix A). Several statements derived from the above mentioned works on measurement criteria were given to the respondents and they were asked to select those they would use as criteria to measure the value of knowledge in their respective organizations. The responses received are shown in table 5.30 below.

Criteria	Profits	Knowledge sharing behaviour	New skills & capabilities staff acquire	Money spent on knowledge	Speed of solving problems	Efficient resource use	Staff trained per year	No. of new useful ideas	Addition of value to the organisation	Not easy to measure	Never attempted to measure the value	Value is obvious	No known measurement criteria
Used	31.9%	100.0%	98.6%	68.1%	95.8%	97.9%	90.3%	95.8%	94.4%	47.2%	52.8%	45.8%	39.6%
Not used	68.1%	0.0%	1.4%	31.9%	4.2%	2.1%	9.7%	4.2%	5.6%	52.8%	47.2%	54.2%	60.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5-30: Criteria for measuring the value of knowledge and information management (n=144)

All the respondents (100%) indicated knowledge sharing behaviour could be used as a criterion for measuring the value of knowledge and information management in their organizations. Other criteria that the respondents thought would provide a good measure of the value of knowledge management were acquisition of new skills and capabilities by staff (98.6%), how efficiently resources are used (97.9%), the speed of solving problems and the number of new ideas generated (95.8%), and additional value that accrued to the organization(94.4%). Further criteria that were favoured to measure the value of knowledge and information management were the number of staff trained per year (90.3%), money spent on knowledge (68.1%) and profits made (31.9%).

Just under half of the respondents (47.2%) said it is not easy to measure the value of knowledge, while 52.8% said they had never attempted to measure the value of knowledge in the organizations. Asked if the value of knowledge is obvious, 45.8% of the respondents answered in the affirmative and 39.6% said they thought there were no known criteria for measuring the value of knowledge.

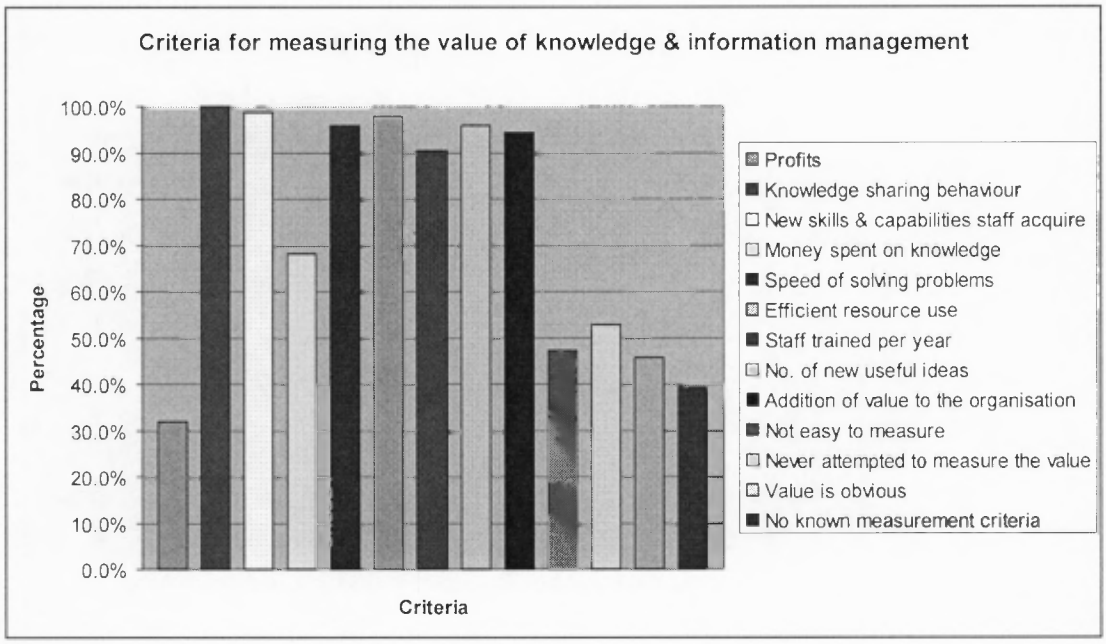

Chart 5-28: Measuring the value of knowledge and information management

5.6.3 Impediments to Promoting Access to Knowledge

An impediment to promoting access to knowledge may be seen as any condition which may prevent an organization from making knowledge more easily accessible to its members. The typical organizational environment prevalent within Kenya could for example be seen to create an impediment to promoting access to knowledge.

Based on a number of impediments identified by Riege (2005:19) the researcher compiled a checklist of possible impediments to sharing and promoting access to knowledge which he presented to the respondents (cf. question 28, Appendix A).
The major impediments that the respondents thought were responsible for curtailing promotion of access to knowledge were:

- Lack of knowledge management policy (95.1%),
- Inadequate financial resources (93.1%),
- Lack of explicit value for money from knowledge management (76.4%),
- Limited information processing capacity 973.6%),
- Inadequate learning facilities (68.8%),
- People's negative attitudes (63.2%),
- Little understanding of knowledge management (61.1%),
- Lack of trust (56.9%),
- Culture of secrecy (53.5%),
- Little support from top management (49.3%),
- Information illiteracy (43.8%),
- Lack of technology for knowledge management (67.4%),
- No proof of value for knowledge management (58.3%),
- Intolerance for mistakes and need for help (48.6%),
- Lack of commitment (49.3%).

Impediments	Inadequate learning facilities	Information illiteracy	Lack of KM policy	Little support from top management	Little understanding of value of knowledge	Inadequate finances	Lack of technology for KM	No proof of the value of KM	Limited information processing capacity	Lack of trust	Intolerance for mistakes & need for help	Culture of secrecy	People' s attitudes	Value for money from KM programmes	Lack of commitment
Impediments	68.8%	43.8%	95.1%	49.3%	61.1%	93.1%	67.4%	58.3%	73.6%	56.9%	48.6%	53.5%	63.2%	76.4%	49.3%
Not impediments	31.3%	56.3%	4.9%	50.7%	38.9%	6.9%	32.6%	41.7%	26.4%	43.1%	51.4%	46.5%	36.8%	23.6%	50.7%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5-31: Impediments to promoting access to knowledge (n=144)

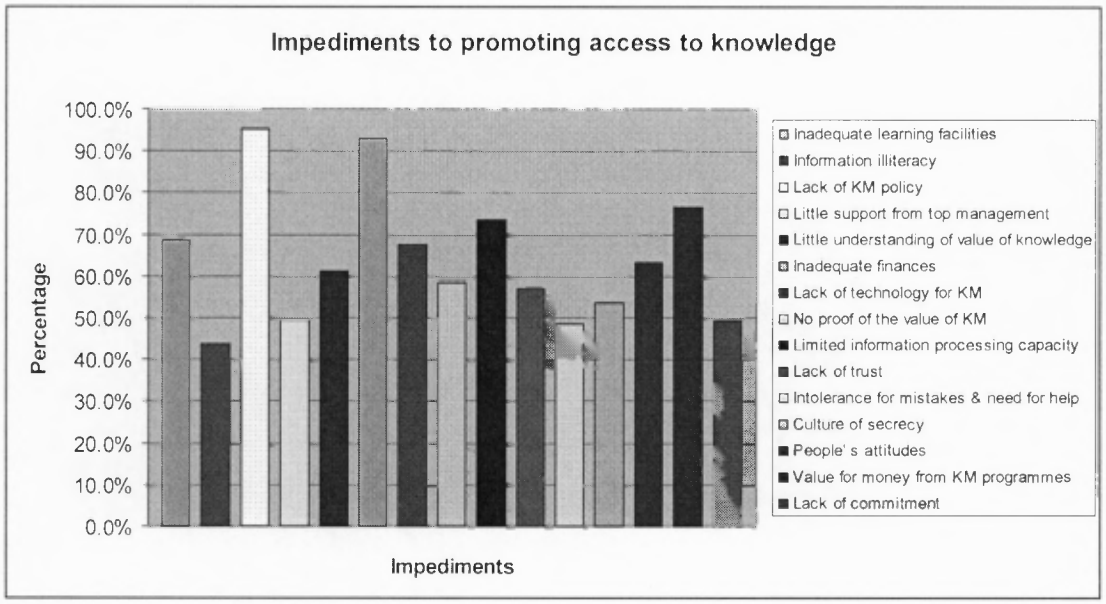

Chart 5-29: Impediments to promoting access to knowledge

It is clear that a large number of the impediments to sharing knowledge that were identified by Riege (2005:19) and submitted to the respondents were seen to be barriers to promoting the sharing of and access to knowledge in the organizations investigated. Most of the impediments identified related to barriers caused by human factors, organizations' systems, processes and technology; organizational culture; and the environment in which the organizations operate.

5.7 Promotion of Access to Knowledge and Information

The researcher asked respondents to propose methods and enablers that would promote the access to knowledge and information in their organizations (cf. question 29, Appendix A). This was an open-ended question and the researcher did not expect any fixed answers from the respondents. Not many proposals were provided but the few that were suggested contained the following suggestions:

- Continuous training of staff,
- Acquisition of technology for knowledge management,
- Hiring staff who are specialists in knowledge management,
- Improvement of library facilities,
- Computerization of the organizational information centres,
- Change of attitude by top management to appreciate the value of knowledge management, and

- Making knowledge management a priority.

5.8 Topics of Relevance to the Study

Finally, the researcher asked the respondents to any topics of relevance to discuss any aspect of knowledge management (cf. question 30, Appendix A). This was another open-ended question which the researcher thought would give the respondents an opportunity of expressing themselves without being confined to any predetermined closed-ended answer categories. Only a few respondents suggested the following topics as being of relevance to aspects of knowledge management:

- Social environment and knowledge management,
- The perspective of adult leaning in organizational learning,
- The role of media in knowledge management,
- Formal training of knowledge management at institutions of higher education, and
- Organizational politics and knowledge management.

These topics were suggested few respondents mostly from the top and middle levels of management.

5.9 Summary

The data collected were categorised and summarised into percentages and presented in tables and charts. Analysed data indicated that substantive knowledge generally flows through the Kenyan government-owned organizations even though there are no strong knowledge management programmes in the organizations. The analyzed data also indicated that many government-owned organizations are learning organizations as many respondents indicated they had acquired new skills, knowledge and capabilities as a result of working for their organizations over a period of time. In the next chapter, the r findings of the study will be discussed in greater depth, conclusions will be reached and recommendations made.

CHAPTER SIX
DISCUSSION OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

6.1 Introduction

This chapter contains a discussion of the findings, recommendations and the conclusion of the study. Issues that arose from the results of the data that were presented in the previous chapter are discussed in this chapter. This chapter further serves to provide perspectives and an insight into the findings of the study taking into account the aim of this study, which was to investigate the practices, procedures and challenges of managing knowledge in government-owned organizations in Kenya.

6.2 Discussion of Findings

The various issues and themes of discussion derive from the specific objectives of the study which as outlined included assessing the extent to which government-owned organizations in Kenya practice knowledge management; determining the extent to which learning takes place in the organizations; finding out how government-owned organizations in Kenya determine the knowledge they require for their operations; finding out whether and the extent to which individual organizational members in the organizations are motivated to contribute to knowledge creation and sharing; and discovering the major managerial challenges and problems the organizations face in managing knowledge.

6.2.1 Profile

A profile of the study population was obtained. As was mentioned previously, the study was purposely constituted in such a way that the respondents were in managerial positions, and these ranged from lower to senior managerial positions (cf. chapter 5.2). Respondents in the lower managerial ranks accounted for the largest proportion (46.5%), those in the middle level accounted for the smallest proportion (18.8%) and those in the senior level accounted for just over a third (34.7%) of the study population. The respondents' ages varied from thirty-five to fifty years. The respondents who were aged fifty years and over mostly occupied senior managerial

positions, while those who were aged between thirty-six and fifty years generally occupied middle level and to a lesser extent senior level managerial positions. The respondents who were aged thirty-five years and below mostly occupied lower level managerial positions. The gender distribution of the respondents was very uneven (cf. chapter 5.2.2). More than two thirds (68.8%) of the respondents were male and only 31.3% were female. Sveiby (1997:159 suggests that the balancing of gender in an organization should be seen as a strategic issue and not an issue of political correctness.

All the respondents had some formal educational qualifications and this ranged from 15.0% of the respondents who were PhD holders, to 43.8% who were Master's holders, to 25.0% who were bachelor's degree holders. Only 16.0% of the respondents were in the high school/diploma educational level category. According to Sveiby (1997:168), the educational level of professionals employed affects the assessment of their competence and thus the organization's ability to achieve future success. Sveiby further argues that formal education is a valid indicator because students at higher academic levels learn to process vast amounts of information. The educational qualifications of the respondents would thus suggest that the organizations investigated have the ability to process information and achieve success.

The distribution of the respondents according to the organizations investigated was determined by the size of the managerial staff complements of the four institutions. It thus followed that by far the largest population was from the largest organization KARI (58%) and only 17%, 14% and 10% were respectively from KIPI, KIRDI and NCST.

6.2.2 Practices, Procedures and Tools of Knowledge Management

Even though knowledge management is practised in government-owned organizations in Kenya only to a limited extent (cf. chapter 5.3) where only 12.5% of the respondents said their organizations practice both knowledge and information resources management, all the respondents after having discussed this new managerial concept with the researcher said that it was important or very important (cf. chapter 5.3.3). A number of respondents thus held the view that many activities in their

organizations are knowledge-oriented even though not explicitly designated as knowledge management activities. From the discussions with and after probing the respondents, it became clear that many of their activities involved knowledge creation, knowledge use, knowledge acquisition, knowledge sharing and knowledge transfer. Many managers however not only found the concept of managing knowledge to be new but also not quite practical to them.

Wiig (1993:419) contends that without a framework it is difficult to help interested and motivated organizational members to build a coherent overview of the important aspects of knowledge that are needed so as to "wrap my arms around it." More importantly, without a framework, it is almost impossible to help others who have not yet had an opportunity to discover the importance of knowledge to understand the need to pursue knowledge management.

It is thus clear that deliberate knowledge management practices in government-owned organizations in Kenya is at the nascent stages of being accepted and adopted and that the view that knowledge should be managed as any other economic organizational resource is yet to be embraced. Knowledge is yet to be seen as an important input to strategic decision-making and knowledge management has not yet been embedded in the day-to-day activities of employees of government-owned organizations in Kenya. This was clearly manifested by the fact that although there was an indication of a budget for information resources, there was no evidence of a budget specifically meant for knowledge management.

6.2.2.1 Importance of Knowledge and Information management

Information has for long been understood as a production factor which should be managed like other production factors – capital and labour (Maier, Hadrich and Peinl, 2005:36). The trio argue that an organization's ability to learn or handle knowledge have been considered the new key success factor to information resources management. This has required new organizational design alternatives and also new information communication systems to support the smooth flow of knowledge which consequently have been called knowledge management systems. Maier, Hadrich and Peinl further argue that knowledge management has extended the focus of information

management to the handling of new information and communication technologies as well as to enrich the development of applications with intelligent technologies. They also argue that in many organizational contexts, knowledge management is viewed as the next consequent step in the development of organizational information processing. Allee (1997:224 argues that knowledge sharing is encouraged when people can readily access the information they need.

Knechtli (2005:95) holds the view that the knowledge economy offers a unique opportunity to help organizations shift from the mechanistic, linear thinking of the "Industrial Age" to a more dynamic view of the world where discoveries from a wide variety of scientific and human behaviour fields synergistically. He further states that leveraging knowledge in an organization may lead to creating value in organizations of various types. The existence of a knowledge management programme is thus an important factor in leveraging the knowledge in an organization.

In the study, a very substantive number (83.3%) of the respondents considered knowledge management to be a very important managerial concept, with the residual 16.7% considering it to be an important managerial concept (cf. chapter 5.3.3). The importance of the concept of knowledge management can only be realised in an organization if it is put into practice. In order to realise the importance of the concept of knowledge management, government-owned organizations should actualize the practice of knowledge management by starting knowledge management programmes in earnest. The organizations should create positions of knowledge managers/officers, start to seek accountability for managing intellectual capital, pay attention to managing internal knowledge and pursue knowledge strategies.

6.2.2.2 Availability of Knowledge Management Programmes

Even though knowledge management programmes have not been initiated in the government-owned organizations in Kenya, management of the organizations appeared to understand the strategic importance of knowledge and the concept of knowledge management. Even with the understanding of the strategic importance of knowledge, it is evident that knowledge management is only applied at the operational levels of organizational management.

There are no standards set for determining the type of knowledge required and/or needed and there are no specific formats in which such knowledge should be delivered. This is based on the fact that while there are significant amounts of knowledge flowing within and through the organizations, there are no knowledge managers specifically responsible for coordinating knowledge management activities even though there are employees who hold knowledge management-related positions. Government-owned organizations in Kenya have not, as yet developed the capabilities or perspectives that may allow them to consider aspects of knowledge management explicitly in such a way that they can manage their knowledge effectively and efficiently. Rather, the situation is such that the organizations haphazardly let knowledge "manage itself" or let each employee manage knowledge in his or her own way. Employees are not accountable to anybody regarding the creation of new knowledge, processing it, storing it and sharing it with other employees or other departments. Other knowledge-related positions facilitate the flow of knowledge and information within and beyond the boundaries of the organizations.

Some positions in an organization help a knowledge management programme to achieve its objectives. Allee (1997:224) argues that documentation management is an important foundation for knowledge management. The position of a documentalist is thus important in an organization which runs a knowledge management programme. Allee also contends that knowledge sharing is encouraged when people can readily access the information they need. Access to information in an organization can be facilitated by a librarian or an information manager/officer. A training manager in an organization plays an important role in knowledge and skills acquisition. Allee (1997:153) views internal training and education as activities which serve the purpose of sustaining and perpetuating knowledge very well. Training programmes help make explicit the tacitly held knowledge of culture and context. Public relations managers and communication managers also have a role to play in knowledge management. According to Rao (2005:58), organizational communication managers should communicate knowledge management messages and circulate stories of successful knowledge management tools. Regular communication vehicles like corporate newsletters, host events, competitions, knowledge fairs, and award ceremonies can be used to reinforce these messages.

Respondents confirmed that all these knowledge management-related positions are available in the organizations investigated (cf. chapter 5.3.4). This ranged from all the respondents who said there was a position of a librarian in their organizations to public relations managers (90.3%), documentalists (89.6%), information managers, (88.9%), training managers, (88.2%) and communications managers (48.6%).

All the above mentioned knowledge management-related positions play an important role in knowledge gathering, making tacit knowledge explicit, and enabling knowledge sharing. The fact that these positions already exist in the organizations investigated would facilitate the introduction of knowledge management programmes in the organizations investigated.

Knowledge and information must be acquired so as to be available in an organization. Wiig (1993:42) advocates that an organization and individual organizational members should acquire knowledge continuously from all available sources and integrate it into a congruous whole. Wiig argues that individual members of progressive organizations need a broad background of knowledge to determine which areas and topics to learn about. Individual members must understand how knowledge is created, where it can be found, and what the best acquisition and knowledge-building modes are.

Individual members of an organization can acquire knowledge for their use, but the norm is for the organizations to acquire the knowledge and information that individual organizational members require for their use. The majority (90.3%) of the respondents indicated that acquisition of knowledge and information was a priority in their organizations (cf. chapter 5.3.7). Given that the respondents were managers in the organizations investigated, one may be tempted to think that acquisition of knowledge and information is an issue that gets attention at the top managerial levels of the organizations.

6.2.2.3 Favourable Knowledge Environment and Use of Knowledge in Innovation

In a knowledge environment, attempts are made to measure or improve the value of knowledge capital, efforts are made to build awareness and cultural receptivity, initiatives are made to change behaviour as it relates to knowledge and attempts are

made to improve the knowledge management process (Davenport and Prusak, 1998:149). Some organizations operating in a knowledge environment make knowledge-related employee behaviour a specific target of their projects.

Most respondents (91.0%) thought that most of the factors promote a favourable knowledge environment are adhered to in their organizations (cf. chapter 5.3.8). This is an indication that knowledge management programmes would be able to thrive in the organizations investigated since the current knowledge environment promotes creation, storage, distribution and sharing of knowledge in the organizations.

Nonaka and Takeuchi (1995:6) link innovation of new products and services to the accumulation of knowledge from internal and external sources. Nonaka and Takeuchi give an example of innovative Japanese companies which bring about innovation by linking the "inside and the outside." In such organizations, knowledge that is accumulated from outside is shared widely within the organization, stored as part of the organizations' knowledge bases, and utilized by those engaged in innovating new technologies, systems and products. A conversion of some sort takes place and it is this conversion process – from outside to inside and back from inside to outside again which results in new products, services and systems. Nonaka and Takeuchi therefore contend that continuous innovation leads to competitive advantage.

From the responses received, it would appear that innovation of new products and services in the organizations investigated is common practice. Nearly all of the respondents (97.2%) said their organizations acquire and use knowledge in the process of innovating new products and services (cf. chapter 5.3.9).The emphasis on new products and/or services in the organizations indicates that new knowledge is constantly being created. Without the creation and acquisition of new knowledge, it would not be possible to innovate and/or produce new products or services.

6.2.2.4 Collaboration

Collaboration is possible when participants work together as a team to reach common goals (Maier, Hadrich and Peinl, 2005:276). In working collaboratively, communication must be very intensive. Activities, resources and information must be

shared. Nonaka, Toyama and Byosiere (2001:500) further contend that a collaborative environment can most efficiently be supported by information communication technology such as online networks and groupware.

The issue of collaboration is not new to the organizations investigated. The results clearly indicate that the government-owned organizations in Kenya collaborate to a significant extent with other organizations within Kenya and elsewhere in the world (cf. chapter 5.3.10). The organizations however may not be collaborating very effectively because of lack of up-to-date information and communication technology.

This study established that there are specific ways in which government-owned organizations in Kenya collaborate with other organizations. Skyrme (1999:5) looks at collaboration as a sure way of enabling organizations to remain adaptive and innovative. He argues that organizations need to collaborate so as to access knowledge that they do not have and to generate new knowledge and commercialize it more quickly. The means of collaboration used by the organizations include joint research projects, joint training programmes, joint workshops/seminars, exchange of research findings, information and staff (cf. chapter 5.3.11).

6.2.2.5 Knowledge Repositories

Maier, Hadrich and Peinly (2005:147) are of the view that Knowledge services work on the basis of integration service, e.g., a knowledge repository. They contend that a knowledge repository handles an organization's meta-knowledge, by describing knowledge elements that come from a variety of sources with the help of meta-data that includes a number of dimensions, e.g. person, time, topic, location, process and type.

Nearly all respondents (99.3%) indicated that some form of knowledge repositories were available in their organizations (cf. chapter 5.3.5). Knowledge repositories can be either electronic or non-electronic. Most of the repositories available in the organizations are non-electronic. Libraries, archives and records centres are in this case considered to be knowledge repositories.

The rationale behind the design of most knowledge repositories is to facilitate the free sharing of knowledge (Boer, Van Baaren and Kumar, 2004:145). Knowledge repositories make it possible for an organization to store the best practices, because knowledge is considered to be a pooled resource that should be accessible by everyone and that can be shared with others where possible.

The three major categories or types of knowledge that respondents indicated as stored in the repositories available in their organizations are external knowledge, structured internal knowledge, and informal internal knowledge. An example of external knowledge category is competitive-intelligence knowledge. Competitive intelligence knowledge can encompass analyst reports, trade journal articles, and external market research on competitors (Davenport and Prusak, 1998:147). Examples of structured internal knowledge are research reports, product-oriented marketing materials and methods. Davenport and Prusak give examples of informal internal knowledge category as discussion databases full of know-how, sometimes referred to as "lessons learned." The availability of structured internal and informal internal knowledge categories in the organizations is confirmation that knowledge is generated internally within the organizations.

6.2.3 Information and Communication Technologies (ICTs)

Information and communication technologies (ICTs) play a major role in the effective management of knowledge. There are several processes of knowledge management for which information and communication technologies have been credited for playing a major role in each process. According to Davenport and Prusak (1998:166), although knowledge management is not entirely dependent on information technology, a basic information technology infrastructure is a necessary ingredient for successful knowledge management projects.

6.2.3.1 Investment in Information and communication Technologies

The study established that only basic information and communication technologies are available in the government-owned organizations in Kenya (cf. chapter 5.4.2). Much needs to be done in as far as investing in ICTs in the government-owned

organizations is concerned. It was however found that many of the ICT's were outdated and/or sorely in need of maintenance. It is clear that the basic technologies available in the organizations are outdated and may not be relied upon to run effective knowledge management programmes. All the government-owned organizations that were investigated have invested in varying degrees in some form of basic information and communications (ICTs) which may be utilized in support of knowledge management programmes (cf. chapter 5.4.2). The information and communication technologies ranged from basic technologies such as telephones and fax machines to more sophisticated ones such as computers, groupware, corporate intranets and access to the Internet

Technology for managing knowledge does not have to be very costly, but it was clear that managers in government-owned organizations in Kenya were under the impression that the technologies required for managing knowledge and information are very costly and that their organizations would not be able to afford such technologies. The basic information and communication technologies already available in the organizations are adequate to support basic knowledge management processes. Some other sophisticated knowledge management technologies are available in the markets, but government-owned organizations in Kenya only have the basic technologies which may enable them to establish basic knowledge management programmes. Even the large corporations which have costly and sophisticated knowledge management technologies normally start with basic simple technologies and then move on to the sophisticated ones.

6.2.3.2 Access to the Internet

The Internet may not necessarily be the best source of information, but it can be an enabler of knowledge sharing. Only 67.0% of the respondents had access to the Internet on a daily basis and it was clear the frequency of access depends on seniority and a person's influence in the organization. All those in senior management thus have daily access to the Internet but the same does not apply to those in the lower ranks of the organizations investigated. Access deteriorated in relation to seniority and was particularly poor for those in the lower management and operational levels of the organizations.

Modern knowledge management tools are generally understood to be computer-based. However, all knowledge management tools need not be computer-based and therefore not information technology dependent. Grantham Nichols, as cited by Tyndale (2002:184) argues that much emphasis is put on the electronic knowledge management tools due to their dynamic capabilities, quick evolution and organizational emphasis. The technology that drives the electronic knowledge management tools has had very limited impact, if any on government-owned organizations in Kenya (cf. chapter 5:4.2). The knowledge management technologies are almost not known in the organizations. The organizations are also not in a hurry to invest in the latest knowledge management technologies because the monetary value of knowledge is not yet explicitly known to them. Due to very limited applications of knowledge management technologies in government-owned organizations, tools of knowledge management are also very limited (cf. chapter 5.4.1).

It is apparent that while sophisticated, modern electronic knowledge management tools are generally not available in Kenya's government-owned organizations, knowledge repositories are maintained by all the organizations investigated (cf. chapter 5.3.5). The knowledge categories stored in the repositories include external knowledge; structured internal knowledge and informal internal knowledge (cf. chapter 5.3.6). Availability and storage of these types of knowledge is a demonstration of the fact that the absence of sophisticated and technology-based knowledge management tools may not necessarily mean the absence of knowledge flow and knowledge management in the organizations. The only notable difference is that the absence of sophisticated knowledge management technologies curtails fast acquisition, processing, sharing and transfer of vast amounts of knowledge.

6.2.4 Organizational Learning

The concept of organizational learning may be much older than the concept of knowledge management, but it is now considered an important component of the study of knowledge management. Wiig (1993:212) thinks that organizations have to learn so as to ensure they are successful and able to attain their operating objectives to the largest extent possible. All organizations would like to be better than their competitors and must maintain or increase their financial and market options as the

world around them keeps changing. For that, Wiig argues that organizations constantly need to learn from their own experiences, from research, from observations of what others do, and from any available sources, hence, the idea of organizational learning. Argyris and Schon (1996:16) state that organizational learning occurs when individuals within an organization experience a problematic situation and inquire into it on the organization's behalf. In order to become organizational, the learning that results from organizational inquiry must become embedded in the images of the organization, held in its members' minds and/or in the epistemological artifacts (the maps, memories, and programmes) embedded in the organizational environment.

Government-owned organizations in Kenya are to a large extent "learning organizations" (cf. chapter 5.5). There are several indicators which point to organizational learning in the organizations investigated. Some of the indicators include:

- Continuous on-off the job training activities
- Paid-off time given to the employees of the organizations for training purposes
- Encouragement of creativity in the organizations
- Rewarding of creativity in the organizations
- The organizations facilitate the learning of employees
- Sharing of knowledge and information encouraged in the organizations.

Learning in organizations is linked to knowledge management and one of the objectives of this study was to find out the extent to which learning takes place in the government-owned organizations in Kenya. It was established that learning takes place in the government-owned organizations of Kenya.

According to Wiig (1994:97), workplace sophistication continues to increase, hence, the need for extensive knowledge and capabilities to operate effectively at workplaces. Such capabilities and knowledge may be acquired through formal training and education or by practical work experience and informal training and education. To acquire such capabilities, one needs to have had sound academic qualifications prior to joining an organization. A number of training opportunities are available in the organizations (cf. chapter 5.5.2). Some of the training opportunities

available include but not limited to on-the-job training, of-the-job training and workshops and seminars organised by the organizations. The organizations encourage employees to acquire new skills, knowledge and capabilities through the many training opportunities available. As a result of the availability of training opportunities and encouragement to train, employees of the organizations are able to acquire new knowledge, skills and capabilities after working for the organizations for some time.

There is no doubt that the government-owned organizations in Kenya hire highly qualified personnel. All the respondents (100.0%) had some level of formal educational qualifications, with 15.3% indicating they had PhD degrees, 43.8% Masters Degree qualifications and 25.0% indicated they had Bachelor's degree qualifications. The remaining 18.7% of the respondents indicated they had high school education or some post-secondary education/training qualifications. Taking into account the fact that there are no structures for knowledge management in the government-owned organizations, it is left to the employees to find the knowledge and information they need for their work. The end product of learning, training and human resource development is knowledge (Ondari-Okemwa, 2006:70). It is not possible for any organization to manage what it does not possess. Organizations/corporations only manage the resources they possess. Apparently, government-owned organizations in Kenya have recognized that training, learning and development of staff are important ways of gathering and generating the knowledge that must be available within the organizations so as to be managed.

There is no doubt that training and development of employees are emphasized and taken seriously by the top management in the organizations investigated (cf. chapter 5.5.3). At KIPI for example, all employees are recruited when they do not know anything about intellectual property rights, but they all get trained and learn on-the-job. The institute sponsors newly recruited employees to go for further studies in intellectual property rights. The institute may sponsor the newly recruited employees to institutions abroad or to local institutions of higher learning where relevant courses are offered. When recruiting however, KIPI makes sure that the newly recruited employees are in possession of prior skills which may assist them in further training in intellectual property rights.

Some respondents said their organizations frequently engage in training activities, but not all employees are given equal opportunity for training, especially off-the-job training opportunities. They said that some employees are favoured when it comes to any kind of training – whether short-term or long-term. Respondents in the middle and lower level management levels said their colleagues in the senior management levels have access to more training opportunities than those in the lower and middle management levels. Asked about the discrepancy in training opportunities, one chief executive of one of the organizations investigated said "training was a costly undertaking and his organization could not afford to train everybody very often or even often enough." The chief executive however said he knew and appreciated the importance of relevant training for all employees.

If the frequency of course attendance by individual employees of an organization may serve as an indicator of the extent to which learning takes place in an organization, then one may say that a lot of learning takes place in the organizations investigated. Not every respondent had attended some relevant course or training, but a good majority (95.8%) indicated they had attended a relevant course or training at least once prior to the survey (cf. chapter 5.5.4). More than half (56.3%) had attended relevant training or course more than four times. On this basis, the researcher interpreted this to mean that most of the respondents who were employees of the government-owned organizations investigated have chances of getting further training and education so as to acquire new and relevant knowledge, skills and capabilities. Some respondents said they had attended training many more times than just four times during the last two years preceding the survey. A few said they had attended relevant training or courses for more than ten times during the last two years preceding the survey.

It was clear that while the organizations required minimum entry-level qualifications, they all encouraged their staff to further their education and acquire new skills while in their employment. This was manifested by the fact that a number of the PhD and Master's Degree holders who were interviewed indicated that they acquired their academic qualifications after joining and working for their organizations for a while. Learning in the government-owned organizations investigated is thus encouraged and facilitated although not explicitly as part of a knowledge management programme.

6.2.4.1 Skills Base

Skyrme (1998:127) identifies a number of capabilities and skills that successful knowledge net workers require. Some of the capabilities and skills that Skyrme identify as ideal for successful knowledge net workers include information, communications, and learning, thinking, personal and networking (interpersonal) skills. Sveiby (1997:36) says that managerial skills which make a manager competent are contextual. According to Sveiby, able managers rely heavily on their social network. For one to know what makes certain individuals behave in a particular manner, what person to contact, which individuals to rely on, and the people to avoid, one requires social skills. Thamhain (2005:88-89) identifies management capabilities which technology organizations must deal with. The capabilities are very relevant to successful organizational knowledge management. The capabilities are:

- Ability to manage technical work content
- Capability to manage talent – this is especially important for tacit knowledge
- To manage knowledge – technology companies generate much knowledge
- Manage information – information management has a strong human side, which often does not receive adequate attention
- Capability to manage communications
- Capability to manage collaboration and commitment
- Capability to build a supportive organizational environment
- Capability to ensure direction and leadership.

The skills emphasized prior to hiring in the organizations investigated (cf. chapter 5.5.5), bear a high degree of similarity with the skills identified by Skyrme and Thamhain. The skills emphasized include ability to communicate, computer skills, information literacy skills, numeric skills, social skills and entrepreneurial skills.

Some skills may appear like they are not really very important for knowledge management, but they have a role they play. Social skills for instance are important because knowledge management is a social process. Entrepreneurial skills are also considered important because government-owned organizations produce services and products that they sell to members of the public. Communication, computer,

information and numeric skills are of obvious importance for effectively operating in a knowledge environment.

In an organization where learning takes place, it may mean that organizational members acquire new skills, capabilities and knowledge after working for the organization for a while. Levitt and March (1998:320) view learning organizations as those that are able to encode inferences from history into routines that guide behaviour. Wiig (1994:231) on his side identifies the two most common approaches to organizational learning as the organization identifying opportunities for internal changes from learning on-the-job and otherwise encourage creative behaviour in its employees and observe and internalize valuable understanding of changes in the world around it. Employees of the organizations investigated confirmed that they had acquired new knowledge, skills and capabilities as a result of working for their organizations over the years (cf. chapter 5.5.6). Some respondents said they had acquired some of their skills and capabilities elsewhere, but they also said they had acquired more of the same skills and capabilities in their organizations. The researcher interpreted this to mean that substantive amount of knowledge flows within government-owned organizations in Kenya.

Improved performance is one of the hallmarks of any knowledge management programme. By engaging in continuous training, the government-owned organizations in Kenya are transferring skills, capabilities and know-how to staff so that they may perform their tasks more effectively and more efficiently. By putting emphasis on training, organizations are able to transfer basic knowledge and understanding to staff. Training and educating staff is an important way of cultivating employees who are knowledge-oriented in several ways. When all or most employees of an organization are knowledge-oriented, establishing a knowledge management programme may not be a major managerial problem. Government-owned organizations in Kenya are now laying grounds for establishing sound knowledge management programmes, although training of employees in the organizations is not exclusively geared towards establishing sound knowledge management programmes.

6.2.4.2 Job Satisfaction as it Relates to Employee Retention

Job satisfaction in any organization is relative and the term may not be used arbitrarily in the case of government-owned organizations in Kenya. When skilled employees of an organization are not satisfied, there is a tendency of them leaving the organization and these should be seen as losses of human and knowledge capital (Koening and Srikantaiah, 2004:169). A knowledge management programme head should be able to know and tell that when an organization is not able to retain employees, it loses substantive amounts of knowledge and experience the employees leaving may have gathered over time.

Ratings of job satisfaction and employee retention levels in government-owned organizations in Kenya range from very low to very high (cf. chapter 5.5.7). It was established that job satisfaction and employee retention may not be all that high in the organizations, but employees stay on because they do not have much of an alternative. Not many employees of government-owned organizations are really enjoying job satisfaction, but they do not leave because there are not many better alternatives elsewhere in the country. Even so, a few employees of the organizations investigated enjoy a very high level of job satisfaction and they may not leave their employment even if there were other better alternatives. That way, the organizations end up retaining employees for long and not loosing human and knowledge capital.

Losing employee because of job dissatisfaction is like being unable to manage talent. Organizations do not produce great results because of their equipment, buildings and infrastructure, but because of their people, ideas and actions (Thamhain), 2005:88). Thamhain further argues that for many technology organizations, talent is everything. The type of talent and its fit with organizational needs and culture determines everything from idea generation to problem resolution and business results. Talent needs to be searched, attracted, developed, and maintained.

6.2.4.3 Organizational/Management structures

The way an organization is structured can have a profound effect on how knowledge and information flow in that organization. Government-owned organizations in Kenya

have very similar structures. All the organizations are managed by a Chief Executive that reports to a board that is constituted by the government through the ministry that is responsible for the parastatal. They are further headed by either a Director or a Managing Director. Immediately below the Managing Director or Director is at least one Deputy Managing Director or Deputy Director who is normally in-charge of finances, administration or technology and research. Below the Deputy Director you would find several Assistant Directors and a few Senior Assistant Directors.

It is clear that the structures of the government-owned organizations in Kenya reflect a typical top-bottom organizational model (cf. chapter 5.5.8) which normally has many bureaucratic characteristics. According to Nonaka and Takeuchi (1995:241), "the implicit assumption behind the top-bottom model is that only top managers are able and allowed to create knowledge while the bottom-up model assumes that knowledge is created by entrepreneurially minded front-line employees, with very few orders and instructions coming from the top management." Nonaka and Takeuchi regard bureaucracy as not being suited for organizational knowledge creation. They associate bureaucracy with the curtailing of individual initiative because of its strong propensity for control and the fact that it cannot be flexible in periods of uncertainty and rapid change.

It clearly emerged from the discussions during the interviews that secrecy is a dominant factor in the Kenyan government-owned organizations and that knowledge is generally treated as a source of power and as a means of control (cf. chapter 5:5.3). Those who happen to have knowledge tend to keep it to themselves as a top secret that may not be shared with others in the organizations. It is not common to allow individual initiative by organizational members. However small an issue, it must be addressed to the Managing Director. Those in the middle management do not enjoy the discretion of making decisions on behalf of the top management. Permission must always be sought from the Managing Director's office for everything that is done. All instructions and commands flow from the top management to the bottom. Nonaka and Takeuchi (1995:240) think that such a top-bottom organizational structure may be suited for dealing with explicit knowledge but not for tacit knowledge exchange. Both tacit and explicit types of knowledge are important to an organization. When establishing a knowledge management programme, both tacit and explicit knowledge

should be organised. Because of the way government-owned organizations in Kenya are structured, it is easier to capture, preserve and share explicit knowledge than it is to capture and share tacit knowledge.

6.2.4 Challenges and Problems of Organizational Knowledge Management

Because the concept of knowledge management is still very new to many Kenyan government-owned organizations, challenges and problems of managing knowledge in the organizations are numerous. It was found that even the few organizations which have attempted to establish knowledge management programmes in Kenya still find the practice very challenging and problematic in many ways.

6.2.4.1 Challenge of Identifying the Benefits of Knowledge Management

It is generally accepted that a number of benefits are supposed to accrue from the good practice of knowledge and information management and many respondents said they thought the benefits of knowledge management are obvious and need not be identified (cf. chapter 5:6.1). Because of the nature of government-owned organizations, only 52.8% (cf. chapter 5.6.2) of the respondents said high profits may be considered as a benefit accruing from good practices of knowledge and information management. Government-owned organizations are non profit. All the respondents (100%) viewed fast acquisition of new information as a benefit that could accrue from good management practices of knowledge and information. Even after identifying the benefits of good management practices of knowledge and information, the respondents were not able to see how the inherent benefits of good practice of knowledge and information management may be translated into tangible benefits.

6.2.4.2 Challenge of Measuring the Value of Knowledge Management

There are no known criteria for measuring the value of knowledge in government-owned organizations in Kenya (cf. chapter 5.6.2). This is a challenge that confronts the current and future practice of knowledge management in the government-owned organizations in Kenya. It is generally not easy to measure the value of knowledge and information in the government-owned organizations of Kenya. To some extent, it is assumed that the value of knowledge is obvious and there is no need to attempt to

measure it – which may not be right. Sveiby (1997:164) outlines three indicators which he calls the "three intangible assets of competence, internal structure, and external structure." The indicators of measurement Sveiby outlines are growth and renewal, efficiency and stability. Although all the respondents were managers, none of them could suggest any criteria for measuring the value of knowledge until the researcher provided a list of potential criteria to them. Lack of criteria for measuring the value of knowledge in government-owned organizations in Kenya may mean that knowledge not looked upon as a strategic organizational resource that may be systematically planned for and managed. This is a challenge that management in the organizations should find a way of going around it.

6.2.5 Impediments to Promoting Access to Knowledge

Several impediments to promoting access to knowledge and information in government-owned organizations were identified (cf. chapter 5.6.3). Some of the major impediments identified include the lack of a knowledge management policy, inadequate finances, uncertainty as to whether value for money could be derived from knowledge management programmes, limited information processing capacity as well as lack of knowledge management technology. A number of the impediments are fairly obvious, while others are not that obvious. The researcher regards these impediments as part of the challenges and problems of organizational knowledge management in Kenya's government-owned organizations.

6.2.5.1 Impediments of Environment, learning facilities and low levels of Information Literacy

The environment in which government-owned organizations operate in Kenya was found to be one of the major impediments to promoting access to knowledge in the organizations. As parastatals organizations, it was clear that the executive branch of government and bureaucracy assume disproportionate importance.

The bureaucratic environment in which government-owned organizations operate in Kenya does not encourage accessing knowledge and information, creating knowledge and sharing it. A bureaucratic environment dictates that instructions and commands

only flow from the top to the bottom. Likewise, knowledge in a bureaucratic environment is supposed to flow from top to bottom. Top level managers tend to freely share knowledge and information only with those in the same level of management. Those in the middle and lower levels of management have to wait to be directed on where to find knowledge and whom to share it with. There are several procedures to follow and such procedures are bound to impede knowledge sharing between the managers in the lower levels and those in the senior levels. By implication, managers in the lower levels are not allowed to initiate anything before seeking authority from the top level management.

Besides bureaucracy in government-owned organizations in Kenya, the researcher obtained the impression that individuals are not encouraged to share knowledge. There is no evidence of "communities of practice" which arise as a result of organizational members becoming passionately interested in sharing expertise and know-how. It has been argued that when individuals are in an environment where they are encouraged to share knowledge in communities, the barriers to knowledge transfer that may be witnessed are likely to be removed or at least made weak (O'Dell and Grayson, 1998:157, Von Krogh, 1998:17).

Lack of adequate learning facilities was found to be another impediment to promoting access to knowledge in government-owned organizations in Kenya. Rather than being inadequate, the learning facilities available in the organizations investigated are outdated. In the information society, effective learning needs more than a well-equipped library and a chalk board. There are libraries or some sort of information centres in the organizations, but they are not well stocked nor are they well organized. Computerised and e-learning facilities are almost totally lacking from the organizations as they are generally seen as being too costly and not necessary and in many instances as being too technical for employees of the organizations.

The level of information literacy among employees of government-owned organizations in Kenya is an impediment to promoting access to knowledge in the organizations. Normally, it is the average national rates of functional literacy that are reported and recorded in statistical records of a nation. Promotion of access to knowledge requires a reasonably high average of information literacy. However,

many of the employees of the organizations suffer from low information literacy rates, making it hard for them to access knowledge from some sources. A person who has a high level of information literacy has the skills and capabilities of accessing information and knowledge from whatever source. For example, knowledge and information stored in computerised sources require users to have some level of computer literacy. Many employees of government-owned organizations in Kenya are not adequately computer literate.

6.2.5.2 Lack of Knowledge Management Policy and Top Management Support

Lack of knowledge management policy was cited as an impediment to promoting access to knowledge by 95.1% of the respondents. This was no surprise considering that knowledge management programmes are almost non-existent in the government-owned organizations in Kenya. At the national level, there is no information policy either. Because of the lack of a knowledge management policy, there are no guidelines as to how knowledge should be generated, processed, stored and retrieved and accessed in the organizations. There are no guidelines on how employees of the organizations should share knowledge, nor are there guidelines on who should access what kind of knowledge and for what purpose. This does not however imply that employees of the organizations do not absolutely have any access to the knowledge they require, but it does indicate there are no guidelines that suggest the type of knowledge they should access to enhance their performance. Such guidelines would ensure that employees access knowledge that would be relevant and may assist them to improve their performance and enhance the quality of their service and/or products. This is a case where employees of government-owned organizations are left on their own to access the knowledge and information they need.

Little support from top management and little understanding of the value of knowledge were found to be impediments to promoting access to knowledge in government-owned organizations in Kenya. In the survey, nearly half (49.3%) of the respondents said that the little support from the top management in the organizations was an impediment to promoting access to knowledge in their organizations. More than half (61.1%) of the respondents said lack of understanding of the value of knowledge was an impediment to promoting access to knowledge in the

organizations. Lack of understanding of the value of knowledge was naturally attributed to the top management of the organizations. Because of lack of understanding of the value of knowledge on the part of the senior management, support for knowledge management initiatives is minimal or non-existent in some government-owned organizations in Kenya. Support of knowledge management by senior management in the organizations would translate to engaging qualified personnel to oversee knowledge management activities and encouraging staff to participate in knowledge creation and sharing. For as long as senior managers in government-owned organizations do not understand and appreciate the value of knowledge, their support for knowledge management initiatives will remain minimal.

6.2.5.3 Impediments of Finances and Lack of Knowledge management Technology

Lack of adequate finances was found to be a major impediment to promoting access to knowledge in government-owned organizations in Kenya. Almost all (93.1%) of the respondents thought that lack of adequate finances was an impediment to promoting access to knowledge in the organizations. This was not surprising at all even though many senior managers who participated in the study were not able to state the exact amount of money they would require for a knowledge management programme initiative. Promoting access to knowledge in an organization does not necessarily require a large amount of money. However, there is this misconception in the government-owned organizations in Kenya that without adequate finances, access to knowledge is not possible. It really does not require any extra finances to make employees know that accessing knowledge, processing it and sharing it must be looked upon as part of their duties and not an extra duty for which they may require extra payment.

Inadequate finances may mean lack of ability to acquire technology for knowledge management. Lack of technology for knowledge management was seen by 67.4% of the respondents as an impediment to promoting access to knowledge in government-owned organizations in Kenya. It is no wonder that lack of knowledge management technology is looked upon as an impediment to promoting access to knowledge in the organizations. It almost obviously follows that when finances are inadequate, the organizations cannot afford knowledge management technology. In government-

owned organizations in Kenya, it is rightly or wrongly understood that technology for knowledge management is sophisticated, too costly and out of reach for the organizations. On average, the knowledge management technologies are costly, but government-owned organizations in Kenya do not necessarily require the sophisticated and costly technologies so as to start promoting access to knowledge. In the event of lack of sophisticated technologies for managing knowledge, Du Plessis and Boon (2004:83) recommend that organizations focus on other processes, platforms and tools for knowledge management. Organizations lacking costly sophisticated knowledge management technologies should focus specifically on knowledge flow processes to ensure that the knowledge cycle of creation, sharing, harvesting and leveraging is optimised. Government-owned organizations in Kenya fall in the category of organizations which lack costly and sophisticated technologies for managing knowledge. Lack of knowledge management technologies may be looked at as an impediment to promoting access to knowledge in the organizations, but it need not be.

6.2.5.4 Lack of Value of Knowledge as an Impediment

Absence of proof of the value of knowledge was also found to be an impediment to promoting access to knowledge in government-owned organizations in Kenya. More than half (58.3%) the respondents thought that total lack of proof of the value of knowledge may be an impediment to promoting access to knowledge in the organizations. To a large extent, there is no tangible or visible proof in Kenya that knowledge can add value to the operations of organizations. Knowledge management may add value to an organization, but it may not be compared, for example with a marketing division of an organization which can show documented proof of improvement of sales of goods or services in a given period of time. There may not be proof of the value of knowledge, but those in the management of government-owned organizations in Kenya should find ways and means of proofing that knowledge has value just like any other organizational resource. Managers should be able to convince employees that knowledge can enable their organizations to improve the goods and services that they provide to the public. Managers should also be able to convince employees of government-owned organizations that a knowledge management initiative can enable them to acquire new skills, knowledge and capabilities.

6.2.5.5 Low Information Processing Capacity as an Impediment

It was found out that limited information processing capacity is an impediment to promoting access to knowledge in government-owned organizations in Kenya. It is a fact that all organizations worldwide and thus also those in Kenya are now overwhelmed by an overflow of information and knowledge. However, the organizations, particularly the government-owned ones have very limited capacity to process such information and make it easily available and accessible to organizational members. Information technologies now make it possible for organizations to acquire, process, store and distribute enormous amounts of information and knowledge. Such technologies are still limited in Kenya and government-owned organizations cannot afford them. The organizations also find it hard to engage and retain personnel who are well qualified in information resources management. The majority of the respondents (73.6%) thought the organizations have a limited capacity for information processing.

6.2.5.6 Impediment of Secrecy and Lack of Trust

The culture of secrecy and lack of trust, which normally go hand in hand with a culture of an organization were found to be impediments to promoting access to knowledge in government-owned organizations in Kenya. Because of the culture of secrecy and lack of trust, individual employees in government-owned organizations have a tendency of hoarding knowledge and not sharing it freely. It was the opinion of 56.9% of the respondents that there exists lack of trust in their organizations. Culture of secrecy as an impediment to promoting access to knowledge in government-owned organizations was cited by 53.5% of the respondents. Tiwana (2002:20) sees hoarding of knowledge as a human tendency that can be overcome by providing irresistible incentives to share. In government-owned organizations in Kenya, knowledge is perceived as a source of power and pride which should not be shared with those who do not have it. Those in senior management in the organizations should familiarize themselves with the "agency-agent" conflict theory where managers try to maximize their gains even if such gains are opposed to maximising those of the organization.

6.2.5.7 Intolerance for Mistakes and Need for Help

Slightly less than half (48.8%) of the respondents saw intolerance for mistakes and need for help as an impediment to promoting access to knowledge in government-owned organizations in Kenya. In any organization, employees may not be encouraged to make mistakes but when mistakes are made, they should be tolerated and corrected. That way, employees get to learn and avoid repeating the same mistakes over and over again. There is a feeling that in government-owned organizations in Kenya, mistakes are not tolerated and those who make mistakes do not feel free to seek help. When a person is helped to correct his or her mistake, that person learns and may not repeat the same mistake. In the event the person commits a different mistake, he or she may seek help. The culture of tolerating mistakes and seeking help should be inculcated in organizational members of government-owned organizations in Kenya.

6.2.5.8 Negative Attitudes towards Knowledge Management

Negative attitudes of people towards knowledge and knowledge management were established to be impediments to promoting access to knowledge in government-owned organizations in Kenya. The concept of knowledge management is still relatively new in the organizations and organizational members have this attitude that with or without knowledge management, it does not make a difference. A good number (63.2%) of the respondents thought the attitude towards knowledge and knowledge management in the organizations was not favourable, and therefore an impediment to promoting access to knowledge. A more active approach to managing the creation, acquisition, representation, transfer, incorporation, and application of knowledge lacks in the organizations investigated. Nobody thinks that knowledge management can transform the organizations in any way. Knowledge is not looked upon as a strategic source of competitive advantage in the in the organizations investigated. Organizational members in the organizations need to be educated on the importance of knowledge management and how it can make a difference between success and failure of organizations.

6.2.5.9 Lack of apparent Value for Money from Knowledge Management

The apparent absence of value for money from knowledge management programmes was found to be an impediment to promoting access to knowledge in government-owned organizations. A good number of the respondents (76.4%) said value for money from knowledge management programmes is hard to assess and identify. Parastatals in Kenya are not profit-making organizations of course, but they are highly conscious of saving money and avoiding losses. Government-owned organizations in Kenya now operate on tight budgets and they would like to cut on costs as much as possible. Considering that the monetary value of knowledge management may not be felt immediately, it is no wonder that the apparent lack of value for money from knowledge management is seen as an impediment to promoting access to knowledge in the organizations.

6.2.5.10 Lack of Managerial Commitment

Lack of management commitment to knowledge management was found to be an impediment to promoting access to knowledge in government-owned organizations in Kenya. Nearly half (49.3%) of the respondents said there was lack of commitment to knowledge management in the organizations. This is interpreted to mean that those in the top level management cadres in government-owned organizations are not committed to knowledge management. Because of lack of commitment from top level management, knowledge management programmes have not been initiated in many government-owned organizations in Kenya. Organizational members are left on their own to access the knowledge that they require.

6.3 Conclusions Drawn from the Study

This study has established that considerable amount of knowledge flows through Kenyan government-owned organizations on a daily basis. The study has further established that in the organizations, knowledge is created, leveraged, shared and generally managed. In the organizations where the study was conducted, knowledge is managed through library services, documentation services, records management, and communication and public relations services. Hitherto information and

communication technologies are not very well developed, but the situation is changing rapidly as information and communications technologies are being developed. At the Kenya Industrial and Research Development Institute for example, information and communication technologies have been acquired for the "important purpose of storing and transferring information and knowledge

There may not be formal knowledge management programmes in many Kenyan government-owned organizations, but knowledge is valued, and there are efforts to treat knowledge as an important organizational resource, just like any other economic resources which appear on the balance sheets of the organizations.This goes a long way to confirming that numerous knowledge management activities are being carried out in the Kenyan government-owned organizations even though there are no activities specifically designated as knowledge management activities in the organizations. In essence, knowledge is created, preserved and shared in the organizations.

With or without formal knowledge management programmes, certain knowledge management practices are prevalent in Kenya's government-owned organizations. For example, a lot of collaboration takes place between organizations in Kenya and between and organizations in other countries. The basic purpose of collaboration may not necessarily be that of sharing of or creating of knowledge jointly but by collaborating, the organizations end up jointly creating and sharing knowledge.

Advanced technologies for managing knowledge may not be available in the Kenyan government-owned organizations, but there is the presence of basic technologies that may support knowledge management. The technologies which support knowledge management must not be very advanced and costly. Telephones, fax machines and computers are some of the basic information and communications technologies which support knowledge management and are available in government-owned organizations in Kenya. The Internet as a source of knowledge and a means of transferring and exchanging knowledge and information is hampered by the prohibitive costs; slow accessibility; insufficient number of digitally literate employees; and lack of sufficiently entrepreneurial service oriented culture.

The Kenyan government-owned organizations investigated qualify as "learning organizations." The organizations encourage and facilitate employees to acquire new skills, knowledge and capabilities. After working for the organizations for sometime, employees are able to acquire new skills, new capabilities and/or new knowledge that they may have not had before joining the organizations. This goes to confirming that the organizations are keen to invest in people's skills, knowledge and capabilities.

Because of lack of knowledge management structures in the government-owned organizations in Kenya, there is no mechanism for determining the kind of knowledge required in the organizations. Consequently, there is no mechanism for determining the formats in which the knowledge required should be delivered. Regardless of this, a great amount of knowledge still flows through the government-owned organizations of Kenya.

To a large extent, employees of the government-owned organizations in Kenya are motivated to create and share knowledge and information. Employees of the organizations are given opportunities to train and learn further, to innovate and to acquire new skills and capabilities. The organizations pay for further training and education of the employees.

Government-owned organizations in Kenya face several challenges and problems in managing knowledge. Some of the challenges are universal and some other challenges and problems are unique to the Kenyan organizational environment. The organizations face challenges such as lack of standards and criteria for measuring the value of knowledge management, establishing a knowledge-friendly culture, lack of understanding of the value of knowledge and little top management support for knowledge management. There are several impediments to accessing knowledge in the organizations. The impediments are equally challenging and problematic.

Knowledge is not static, but fluid; it is absorbed by individuals who interpret, modify and use it for their own purposes. It is the hope of the researcher that this study will herald the start for continuous research on the management of organizational knowledge in Kenya. The researcher also hopes that this study will encourage top level organizational managers in general and in particular knowledge managers in

Kenya not only to continue learning how to manage organizational knowledge better and more efficiently, but also to take cognizance of current organizational knowledge management research paradigms and practices.

The researcher hopes that the findings of this study will assist managers in government-owned organizations to realize that starting an organizational knowledge management programme need not be complicated, technology-based and costly. Government-owned organizations in Kenya have resources with which they may establish knowledge management programmes but those in management may not be aware of that. This study will hopefully help managers in government-owned organizations in Kenya to realize that they have adequate resources with which they may establish knowledge management programmes. The study will also hopefully help managers in the Kenyan government-owned organizations realize that part of the knowledge required for operations already exists within the organizations.

Most important, the researcher hopes that the findings of this study will assist government-owned organizations in Kenya to stimulate and encourage the creation of new knowledge, to better understand how to acquire knowledge, how to process knowledge, how to store and preserve knowledge, how to disseminate knowledge and how to share knowledge economically. Better knowledge management will most probably enable Kenyan government-owned organizations to acquire and sustain a competitive edge and provide superior products and services to the citizenry.

Practices and procedures of knowledge management focus on collecting and sharing of knowledge and expertise in organizations. It is apparent and noted that nearly all the challenges and problems associated with knowledge management in government-owned organizations in Kenya revolve around lack of knowledge policies, lack of a knowledge culture and an attempt to manage knowledge in an economy that is not a "knowledge economy.

This study has answered the research questions as follows:

To what extent and how do government-owned organizations in Kenya practice and apply knowledge management principles?

Government-owned organizations in Kenya practice and apply knowledge management principles to a limited extent. Many activities in the organizations are knowledge-oriented and substantive amounts of knowledge flow through and within the organizations. However, there are no activities explicitly designated as knowledge management activities. There are no managers specifically appointed to manage knowledge but the knowledge flow is managed by officials occupying other knowledge management-related positions.

How do government-owned organizations determine the knowledge they require, its formats and when it should be available?

There are no frameworks for knowledge management in the Kenyan government-owned organizations. There no policies which guide the determining of the types of knowledge required in the organizations and the formats in which such knowledge should be delivered. There are no known strategies for acquiring, preserving, accessing and sharing of knowledge in the organizations.

What kinds of tools are available in the organizations for managing knowledge?

The tools available for managing knowledge in the organizations are largely non-electronic. The sophisticated knowledge management tools are not available in the organizations. Available as tools for managing knowledge in the organizations are non-electronic based knowledge repositories. Different types of knowledge are stored in the repositories available in the organizations. Examples of the types of knowledge stored in the available repositories are structured external knowledge, structured internal knowledge and informal internal knowledge. The availability of structured and informal types of knowledge is a demonstration that knowledge is internally generated in the organizations.

Are individual employees in the government-owned organizations in Kenya motivated in any way to contribute towards the creation of new knowledge and sharing of knowledge?

Individual employees in the organizations are not accountable to anybody regarding the creation of new knowledge, processing knowledge, preserving it and sharing it with other employees or departments. However, employees are encouraged to acquire new knowledge and share it with others and other departments. Employees of the organizations are encouraged and allowed to go for further studies and training while they are still paid. On average, frequent activities in the organizations are frequent, thus enabling employees to acquire new skills, new knowledge and new capabilities.

To what extent does organization learning take place in the government-owned organizations of Kenya?

It was established that organizational learning takes place in the Kenyan government-owned organizations and that each of the organizations investigated qualifies for a "learning organization." As a result of organizational learning taking place in the organizations, it was found out that individual organizational members are able to acquire new knowledge, new skills and new capabilities after working for the organizations for a while. Workshops/seminars for employees are organized and sponsored by the organizations. Employees are allowed on and of-the-job training sessions, all of which enable employees to acquire new knowledge and skills.

What are the major managerial challenges and problems that government-owned organizations face in managing organizational knowledge?

The study discovered a number of challenges and problems that government-owned organizations in Kenya face in managing organizational knowledge. Major among the challenges were identifying the benefits of knowledge management and measuring the value of knowledge management in the organizations. Several impediments to accessing knowledge in the organizations were discovered too. Among the major impediments discovered were the environment in which the organizations operate, lack of adequate learning facilities, low levels of information literacy, lack of knowledge management policy, little support for knowledge management from the

top management of the organizations and lack of understanding the value of knowledge among other impediments.

6.4 Recommendations

The recommendations that follow all emanate from the findings of the study.

6.4.1 Introducing and Implementing Knowledge Management Practices

Knowledge management is yet to be fully embraced in Kenya's government-owned organizations. To introduce and implement knowledge management practices, it is recommended that the organizations should start with a slow, narrow approach. The organizations should first start with focusing on issues of known importance and within their current ability to handle such issues. It may take a year or longer to broaden the approach while building the understanding of the importance of knowledge and capabilities of handling knowledge management. The concept may spread out after managers, knowledge workers and other professionals within the organizations start to appreciate the strategic importance of managing knowledge assets and processes.

6.4.2 Designing Knowledge Management Systems

Government-owned organizations in Kenya do not as yet have knowledge management systems. It is recommended that every government-owned organization in Kenya should design a knowledge management system and a knowledge management enterprise framework. A clear definition of the desired behaviour should be clearly spelt out in the framework. Such behaviours should define the knowledge culture of the organization as well as the level of risk the organizational members are willing to take in their jobs, the degree to which they may collaborate across functional groups within the organization and ultimately the degree of knowledge management support employees are expected to bring to the development process. The organizations should start creating competencies by encouraging and supporting individual organizational members to acquire more competencies in their different areas of specializations. Communities of tacit knowledge holders should be created in

the organizations. Such communities can be developed according to the needs of different government-owned organizations.

6.4.3 Integration of Knowledge Management Systems

Knowledge management systems have not been fully integrated in the operations of government-owned organizations in Kenya, as yet. Because of non-integration of knowledge management systems in the organizations, the generation and sharing of knowledge is not emphasized and is not a priority. It is thus recommended that the organizations effectively integrate knowledge management systems with the goal of transcending boundaries to disseminate essential knowledge to organizational members. Management should facilitate the sharing of such knowledge within the organizations and ultimately facilitate the sharing of such knowledge with members of the public who pay taxes which sustain the parastatals. All organizational members should be encouraged to contribute, as well as seek information and processes that may help them accomplish the mission of their organizations. Sharing of knowledge should be linked to performance rather than payment for contribution and sharing. The performance link will demonstrate to employees that participating in the organizations' knowledge management systems is a necessary part of their jobs.

6.4.4 Understanding of Knowledge

Managers and other professionals in government-owned organizations in Kenya lack proper understanding of knowledge and its strategic importance. As a result, knowledge is not quite treated as an important organizational resource. It is therefore recommended that managers and other professionals in the organizations be provided with relevant understanding of knowledge, how it is used in organizations, and how it can be captured, organized and managed to improve organizational performance. An effort should be made to familiarize managers and other professionals on how knowledge is gathered, how it is processed, how it is stored and how it is retrieved when required for use.

6.4.5 Expertise Available within the Organizations

Plenty of expertise is available within the government-owned organizations in Kenya. However, the extent of the expertise available in the organizations is not well known because it is not documented as the organizations do not conduct knowledge audits to establish who among the organizational members has what kind of expertise and how such expertise may be used gainfully. Managers within the organizations should be made aware of the need to obtain a clear overview of the knowledge and expertise that may be available within the organizations and how such knowledge and expertise are used. Establishment of any knowledge management programme should be advised to take into account the knowledge and expertise already available so that duplication may be avoided.

6.4.6 Managing Change

The concept of managing change is rare in the government-owned organizations of Kenya. With the introduction of knowledge management in the organizations, many changes are bound to take place. Managers, professionals and other employees of the organizations will be expected to do things differently. It is recommended that the government-owned organizations be prepared to manage change. Specialists in organizational change and organizational development should be engaged to manage the expected organizational change when knowledge management programmes are introduced. By introducing knowledge management, the organizations will effectively be asking employees to learn new ways of doing things, new ways of working, new ways of solving problems, and above all, acquiring new knowledge, skills and competencies so as to cope in the knowledge environments. This may unfortunately be resisted by organizational members. The organizations should for that matter involve employees, give them ample opportunity and incentives to learn and internalize what they need to know about the new approaches. The mental "cost" required to acquire new knowledge and skills must be less than the perceived benefits so as to minimize chances of resistance by employees.

6.4.7 Change of Organizational Philosophy, Culture and Management Practices

Organizational philosophy, culture and management practices in government-owned organizations in Kenya may not be said to be quite supportive of knowledge management. In order for the organizations to realize effective knowledge management, there is need to adapt organizational philosophy, culture and management practices that may support the concept of knowledge management. Management in the organizations need to spearhead the initiative with vision, leadership, allocation of resources of all types, and desire to exploit the leveraged capabilities and available opportunities. The culture of knowledge creation and sharing should be built in the organizations. The culture which encourages and nurtures learning and innovation should be developed in the organizations. When organizational culture works against learning and innovation, it should be noted that efforts to build an organizational knowledge base are likely to fail. The organizations should embrace the culture and management styles which support independent thinking and innovation of organizational members.

6.4.8 Pooling Knowledge

Pooling knowledge is not a common practice in government-owned organizations of Kenya. The organizations need to make efforts to pool knowledge from all sources. In order to bring greater knowledge to bear on a particular task, especially when the task is out of ordinary, the organizations need to make more knowledge available than any single person or department of an organization may have. Knowledge may be pooled by bringing together several individuals or groups each of who has expertise in different but complementary areas. The organizations can achieve pooling of knowledge by having small groups of people with varying levels of skills and knowledge to collaborate on a one-time task. Pooling of knowledge can also be achieved by creating permanent teams whose members have different areas of expertise and who may complement each other to perform tasks. Another way of pooling knowledge is by forming "expert access networks" to provide formalized, active knowledge support systems that allow people with general knowledge and those with specialized knowledge to network.

6.4.9 Knowledge Profiles

Government-owned organizations in Kenya do not have knowledge profiles of all their employees. There is need for the organizations to document the proficiency levels of their staff members. Different staff knowledge domains should be documented. By so doing, it will be easy to obtain a highly representative description of what each staff member knows, or what kind of expertise may be required to perform effectively and efficiently in different tasks. Knowledge profiles may help the organizations to identify strengths and weaknesses of staff members and be used as a basis for training staff in their weak areas.

6.4.10 Use and Focus of Knowledge

It is not enough to just avail knowledge in the government-owned organizations of Kenya. Knowledge that is available but not used is no better than knowledge that is not available at all and cannot be used by organizational members. The organizations should find a mechanism of ensuring that the knowledge made available is put to use. It is recommended that the organizations should provide incentives to facilitate use of the best and most advanced knowledge available. The organizations should embed what is learned in the design of their products and services and incorporate selected aspects of what has been learned into their systems and procedures in ways that allow quick access and updating when there is need. The organizations should also focus on knowledge. Focus on knowledge may help the organizations determine the knowledge they require, the conceptual level at which the knowledge may be required, and the format such knowledge may need to be held in so as to help organizational members improve their performance. Focus on knowledge may also help the organizations to ascertain requisite knowledge of individual organizational members and groups before delegating any work to them.

6.4.11 Knowledge Management Policy

No government-owned organization in Kenya has a knowledge management policy. Lack of a knowledge management policy may be a reason for an organization's failure to enable its members to have easy access to knowledge and information. It is recommended that each government-owned organization should formulate a

knowledge management policy. The policy may help the organizations determine the type of knowledge they require, the format in which the knowledge may be presented, where to find it and how to acquire it. The policy may also guide the organizations on who should have access to what kind of knowledge and when. In a broader sense, the government of Kenya should enact a broader, national knowledge management policy. A national knowledge management policy would ensure that every citizen, school, institution, organization and department have access to new information and knowledge generated anywhere in the world.

6.4.12 Information and Communication Technologies (ICTs)

Government-owned organizations in Kenya have only been able to invest in the basic information and communication technologies. Many modern knowledge management tools are information technology-based. Organizations which have knowledge management programmes use information technologies to capture, organize, store and codify knowledge. It is recommended that government-owned organizations invest reasonably in modern information and communication technologies. The technologies are likely to help the organizations enhance knowledge creation and sharing. The technologies may also help the organizations in transferring knowledge more rapidly. Information technology should be viewed as a pillar that is peculiar to supporting and/or enabling knowledge management strategies and operations. Information technologies can also be used for supporting collaboration and codification of knowledge management strategies and functions.

Lack of costly and complicated knowledge management technologies should however not necessarily mean that knowledge cannot be managed in government-owned organizations of Kenya. What this means is that the government-owned organizations in Kenya may not have complicated knowledge management technologies, but they may devise and have alternative processes, procedures and tools which may be used for managing knowledge. In the absence of sophisticated knowledge management tools, government-owned organizations in Kenya may put emphasis on creating knowledge, sharing it and storing it by means of non-technology based tools of knowledge management. Such tools may not be versatile or complicated as those based on technology, but still they will pave the way for knowledge management

programmes in government-owned organizations. The technologies for managing knowledge may be costly for now, but there is hope that the costs of installing such technologies may go down as more of such technologies are developed by different competing enterprises.

6.4.13 Internet Availability

The Internet may not necessarily be the best source of knowledge, but it can provide a communications platform through which communities of practice may be formed and reformed. The Internet supports e-mail, which is the most commonly used collaborative tool despite its limitations (Rumizen, 2002:150). The Internet can also be a source of explicit knowledge. The Internet is available only to some staff members in the government-owned organizations of Kenya. Those in the top management levels are the ones who enjoy free access to the Internet in the organizations. It is recommended that the organizations allow all members unlimited free access to the Internet. The Internet can allow organizational members to share knowledge with their counterparts in other organizations within Kenya and elsewhere in the world. The organizations should also build and maintain good technology infrastructure which may be relied on for Internet connectivity.

6.4.14 Investing in Electronic Knowledge Management Tools

Government-owned organizations in Kenya have not invested in electronic-based knowledge management tools. It is recommended that the organizations invest in current electronic-based knowledge management tools. Some of the tools recommended for investment include intranet, e-mail, group calendar/scheduler and electronic messaging system; electronic performance support systems; knowledge inventory systems; artificial intelligence; computer-based training systems; web-based training systems; interactive electronic support manuals; and electronic meeting systems and groupware to support collaboration. The organizations can invest in the tools in piecemeal as they are costly.

6.4.15 Technological Levels

Technological levels in Kenya are generally low. Personnel with reasonable technical skills and know-how in government-owned organizations and in the larger public sector are scarce. The few who have technical skills and know-how prefer to work in the private sector where it is believed remunerations are superior. Government-owned organizations are not in a position to attract the few who are well-endowed with technical skills and know-how. For that matter, it is recommended that government-owned organizations in Kenya should initially consider adapting a much broader perspective and starting knowledge management programmes in non-technical ways that may enable the organizations to achieve the broad goals and objectives of the practices of knowledge management.

6.4.16 Learning and Training

Learning and training are sources of new knowledge, capabilities and skills which employees of government-owned organizations in Kenya need so as to be more effective in their performance. It is recommended that the organizations should put in place educational and training programmes for their employees. Management in the organizations should make sure that every organizational member is enabled to learn as much as he/she can about competition, effectiveness and performance of their products and services, what may be expected in the future and everything else that may be of importance. The organizations should be able to make available what has been learned to all organizational members who can make use of the knowledge and provide incentives to ascertain that the newly acquired knowledge is put to good use.

6.4.17 Top-bottom Problem Solving

Top-bottom problem solving as opposed to bottom-up or middle-top bottom is prevalent in the government-owned organizations in Kenya. In the top-bottom problem solving management style, the upper echelon tends not to delegate authority or creative work to lower levels. Knowledge management may also be looked upon as a province of the upper echelon. It may be perceived that only those in the upper management have a right of creating, sharing and using knowledge. It is recommended that the organizations should minimize the top-bottom problem solving

system as much as possible. This way, top level managers may not think they have the monopoly of skills and knowledge required for problem solving. Top-bottom problem solving system denies those in the lower levels the opportunity to create knowledge, share knowledge and have access to the knowledge held by those in the upper echelons.

6.5 Further Research

The results presented in this study have shown that knowledge flows through the government-owned organizations of Kenya, confirming that knowledge, whether managed or not, will always flow in any organization – whether formal or informal. The results of the study have also shown that in Kenya's government-owned organizations, managers at all managerial levels do not as yet recognize knowledge and expertise as valuable assets that may be systematically managed. As a result, majority of managers in the organizations do not know how to characterize, appraise, value, or manage knowledge and expertise explicitly and actively. Four important areas of knowledge management are particularly recommended for further future research.

6.5.1 Methods and Tools of Managing Knowledge in the Kenyan Organizational Environment

There is no doubt that the organizational culture in Kenya presents a unique environment which may require unique methods and tools to supplement the known, existing methods and technologies of knowledge management. The existing and known technologies and tools for managing knowledge may not be available in Kenya and may be too costly for the Kenyan government-owned organizations. Further and future research should focus on methods, technologies and tools of knowledge management that are specifically oriented towards managing knowledge in the unique organizational environment of Kenya. Such methods can be replicated elsewhere in sub-Saharan Africa. Scarbrough and Swan (2001:4) are of the view that efforts to promote knowledge management often involve a repackaging of tools and practices which have been developed in a different context. Wiig (1995: XV) contends that

hands-on management of knowledge requires that practising knowledge professionals have access to a wide range of approaches and methodologies.

6.5.2 Knowledge Sharing Culture

Knowledge sharing in any organization must be motivated by management. Management in government-owned organizations in Kenya may be willing to motivate knowledge sharing, but they may not know how to do it effectively. Organizational culture prevailing in Kenya may make organizational members imagine that if they share their knowledge or knowledge-related perspectives, they may jeopardise their own situation. Employees of government-owned organizations may imagine that by sharing knowledge, their expertise may become explicit and they may be replaced. They may also imagine that by sharing their knowledge, they may open themselves to criticism or make it open that they have insufficient knowledge for their positions. It is recommended that research should be conducted on how to promote knowledge sharing without making employees in the organizations feel insecure. Research should be carried out to determine the kind of appropriate incentives employees of government-owned organizations in Kenya may be given so as to share knowledge freely.

6.5.3 Integrating Knowledge Management into Government-owned Organizations in Kenya

Knowledge management has not quite been integrated into management initiatives in government-owned organizations in Kenya. Wiig (1995:58) is of the view that many knowledge management methods complement various management initiatives. He further opines that several knowledge management activities are valuable precursors to implementing such initiatives and provide important foundations for them. Knowledge management methods also provide increased knowledge and knowledge access which supply the expertise and intelligent behaviour required for such initiatives to succeed. It is recommended that research be conducted to determine the best ways of integrating knowledge management with managerial initiatives in Kenya's government-owned organizations. The research to be conducted should address such issues as how the organizations should deal with the intellectual aspects

of organizational members, how knowledge and skills available within the organizations should be used to achieve organizational objectives, and how such skills should be used to plan for technology acquisition.

6.5.4 Promotion of Free Flow of Knowledge

Several factors act as impediments to promoting free flow of knowledge in Kenya's government-owned organizations. From the issues raised in this study, one can see that access to knowledge and active knowledge building in the organizations are not guaranteed. Ellis (2005:55) is of the opinion that where employees cannot get access to key knowledge, they are likely to be less efficient, and where organizations lag behind in terms of what they collectively know, they are destined to be less competitive. It is recommended that research be conducted on how to promote free flow of knowledge in government-owned organizations of Kenya. Free flow of knowledge in the organizations can enable employees to have access to key knowledge and in turn, they may improve in performance. Consequently, free flow of knowledge may also enable government-owned organizations in Kenya to be more competitive.

6.6 Summary/Final Conclusion

In conclusion, this study has demonstrated that considerable amount of knowledge flows through government-owned organizations in Kenya, even though the organizations do not have conventional knowledge management programmes in place as yet. The knowledge management technologies generally available in other countries are not available in these organizations. This however does not in any way mean that knowledge cannot be managed as knowledge management does not wholly depend on sophisticated and costly technologies. The study has also shown that learning takes place in the organizations and that the environments in the organizations enable employees to acquire new skills and capabilities after working there for some time. Several factors act as impediments to promoting access to knowledge and information in government-owned organizations in Kenya. Such factors need to be addressed both at the national level and organizational level.

At the national level, policy makers should understand that the new and evolving character of the emerging information economy, intangible goods and knowledge may mean that the old rules of creating wealth and acquiring competitiveness may no longer be relevant. The traditional factors of production may not provide answers to the new questions confronting the "networked society." People equipped with skills and who are capable of creating, using and managing knowledge and information may provide answers to the new questions which confront government-owned organizations in Kenya and elsewhere in sub-Saharan Africa. The government-owned organizations in Kenya can design and implement knowledge management programmes at organizational level, but the government should establish an overall enabling environment by:

- Formulating information technology and knowledge management sharing policies that are user-friendly and can promote knowledge and information sharing in the country.
- Investing in relevant infrastructure (telephones, electricity etc.) that may make knowledge transfer and sharing a reality.
- Hiring top level managers who are capable of providing visionary leadership in the government-owned organizations. Incompetent top-level managers hired for reasons other than merit may not be capable of initiating and supporting processes that are likely to promote creation and sharing of knowledge and information in the organizations.
- Providing incentives which are likely to promote knowledge creation and sharing in the organizations. Employees of the government-owned organizations are basically government employees. Such employees should for example be recognized and rewarded for creating knowledge, sharing knowledge and for acquiring new relevant skills, knowledge and capabilities.

At the organizational level, top-level managers of government-owned organizations should understand that knowledge workers, who are expected to create, share and manage knowledge, require autonomy as well as interaction so as to be effective. Knowledge workers are known to prefer operating in flexible and working in places of their choice. Knowledge workers also need to interact at each stage of the knowledge work cycle. Knowledge workers also like collaborating with their

counterparts within or out of their organizations. Bureaucracy, which is prevalent in Kenya's government-owned organizations may not favour interaction and collaboration of knowledge workers.

Top-level managers in government-owned organizations should try to build knowledge-friendly environments which may promote openness, trust and flexibility. The managers should for the time being try to avoid too much emphasis on technological aspects of knowledge sharing at the expense of social, behavioural and attitudinal features that are necessary to ensure that meaningful knowledge is both supplied to the system for gathering, processing, analysis and distribution and subsequently acted upon. It might look like an unachievable dream, but knowledge management is possible in Kenya's government-owned organizations.

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APPENDICES

Appendix A

INTERVIEW SCHEDULE

Research Topic: An investigation into practices, procedures and challenges of corporate knowledge management in Kenya.

Initiate the interview with the following introduction

Knowledge management is the collaborative approach to identifying, capturing, organizing, disseminating and sharing knowledge. Knowledge is increasingly becoming important as a corporate resource and as a new source of competitive advantage. As such, modern organizations all over the world have initiated and continue to initiate knowledge management programmes to enhance their competitiveness. The purpose of this survey is to identify the practices, procedures and challenges of corporate knowledge management in Kenya.

It is expected that this research project will result in illuminating examples of good corporate knowledge management practices in Kenya and suggesting methods to improve corporate knowledge management to enhance competitive advantage in Kenyan organizations. Please, respond to every question as accurately as possible knowing that there is no right or wrong answer. Thank you for your cooperation.

Section One - Background Information and Profile

1) Name of your organization ----------
2) Nature of business ----------
3) Your position ----------
4) What is your age bracket? (Ask question at and of the interview)
   i. Below 35 { }
   ii. 36 - 50 { }
   iii. Above 50 { }

5) Your gender (Note unobtrusively)

   i. Male { }
   ii. Female { }

6) What is your highest academic/education level? (please select your answer from the choices below)
   i. High school/certificate /diploma level { }
   ii. Bachelor's degree { }
   iii. Master's degree { }
   iv. PhD { }

Section Two – Practices, Procedures and Tools of Knowledge Management

7) Is there a corporate knowledge management programme or an information resources management programme in your organization? (please select as may apply) (Explain the meaning of these concepts)

i. A knowledge management programme { }
ii. An information resources management programme { }
iii. Both of the above { }
iv. None of the above { }

8) Which of the following resources do you consider to be critical for the success of your organization? (Please rank the resources from 1 – 3 in the order of very important, fairly important and least important)

i. Information { }
ii. Finance { }
iii. Human { }
iv. Physical { }

9) What do you personally think of knowledge management as a managerial concept?

i. Very important { }
ii. Important { }
iii. Not important { }
iv. No opinion { }

10) Which of the following positions are available in your organization in as far as you know? (Please select as many as may apply) (Check to be sure that respondents understand the meaning of the concepts)

i. Knowledge manager/officer { }
ii. Training manager/officer { }
iii. Information manager/officer { }
iv. Librarian { }
v. Communications manager/officer { }
vi. Documentalist { }
vii. Public relations manager/officer { }

11) (a) Knowledge repositories are depositories where knowledge may be easily stored and retrieved when needed or required.(Expand further on explanation if need be)

Are you aware of the existence of any knowledge depositories in your organization?

i. Yes { }
ii. No { }

(b) If your answer to question 11(a) above is yes, which of the following types of knowledge are stored in your organization's knowledge repositories?

i. External knowledge (competitive knowledge) { }
ii. Structured knowledge (research reports) { }
iii. Informal internal knowledge (lessons learned) { }

12) In as far as you are concerned, is acquisition of knowledge and information a priority in your organization?

i.	Yes	{ }
ii.	Sometimes	{ }
iii.	No	{ }

13) A favourable knowledge environment exists in an organization that measures and improves the value of knowledge/intellectual capital, attempts to improve knowledge and information management, builds awareness of knowledge and encourages learning on and off the job.

Do you think these factors are promoted to create a favourable knowledge environment in your organization?

i.	Yes	{ }
ii.	No	{ }

14) Is your organization keen on acquiring and using knowledge in the process of product/service innovation?

i.	Yes	{ }
ii.	No	{ }

15 (a) In as far as you know, does your organization collaborate with other organizations in knowledge creation, dissemination and sharing? (Explain if not clear)

i.	Yes	{ }
ii.	No	{ }

(b) If your answer to number 15(a) above is yes, in which of the following ways does your organization collaborate with other organizations in knowledge creation, sharing and dissemination? (Please select as many as may apply)

i.	Joint research projects	{ }
ii.	Joint training programmes	{ }
iii.	Joint seminars/workshops	{ }
iv.	Exchange of staff	{ }
v.	Exchange of information	{ }
vi.	Other	{ }

Section Three - Information and Communication Technologies

16 (a) Do you think your organization has invested adequately in information and communication technologies? (Explain the relationship with KM)

i.	Yes	{ }
ii.	No	{ }
iii.	No opinion	{ }

(b) If your answer to number 16(a) above is yes, what kind of information and communication technologies has your organization invested in? (Please select as many types as may apply) (Explain further where necessary)

i.	Telephones	{ }
ii.	Fax machines	{ }
iii.	Computers	{ }
iv.	Groupware	{ }
v.	Corporate intranets	{ }
vi.	The Internet	
vii.	Other	

17) How often do you have access to the Internet in your organization?

i.	Every day	{ }
ii.	Four times a week	{ }
iii.	Three times a week	{ }
iv.	Once a week	{ }
v.	Twice a month	{ }
vi.	Once a month	{ }

Section Four – Learning Organization

A learning organization is one in which employees continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are encouraged and nurtured, where collective aspiration is set free, and where people are continually learning to learn together. On and off-the-job learning is highly valued in a learning organization.

18(a) Do you consider yours to be a learning organization? (Explain the concept further Where necessary)

i. Yes { }
ii. No { }
iii. No opinion { }

(b) If your answer to number 18(a) above is yes, which of the following statements apply to your organization as a learning organization? (Please select as many as may apply)

i. Employees are encouraged to learn on and off the job { }
ii. Employees are given paid time-off to learn new skills { }
iii. Employees are encouraged to be creative { }
iv. The organization facilitates further learning of all employees { }
v. Creative employees are rewarded regardless of rank { }
vi. Sharing of knowledge and information is encouraged { }

19) What types of training opportunities are available in your organization? (Pease select as many as may apply)

i. On-the-job training { }
ii. Of-the-job training { }
iii. In-house training { }
iv. Organized workshops/seminars { }

20) In your consideration, how often does your organization engage in staff training activities?

i. Very often { }
ii. Often { }
iii. Rarely { }

21) How many times have you attended training/course relevant to your job that lasted for more than half a day during the last two years?

i. More than four times { }
ii. Three times { }
iii. Twice { }
iv. Once { }
v. Nil { }

22) What type of important skills does your organization emphasize on when hiring new employees? (Ask them to rank the skills on a 1-5 scale according to importance and level of emphasis) 1=least important and least emphasized, 5= most important and most emphasized. (They can select and rank as many skills as may apply)

i. Communication skills { }
ii. Computer skills { }
iii. Information literacy skills { }
iv. Numeric skills { }
v. Social skills { }

vi. Entrepreneurial skills { }
vii. Any other skills (Please specify) ----------

23) What skills, knowledge and capabilities have you acquired as a result of working for your organization over the years? (As them to select as many as may apply)

i. Managerial skills { }
ii. Computer skills { }
iii. Problem-solving skills { }
iv. Public relations skills { }
v. Marketing skills { }
vi. Communication skills { }
vii. Social skills { }
viii. Entrepreneurial skills { }
ix. Any other skills (Please specify) ----------

24) How would you rate job satisfaction as it relates to employee retention in your organization?

i. Very high { }
ii. High { }
iii. Adequate { }
iv. Low { }
v. Very low { }

25) How would you describe the management structure of your organization? (Explain the concepts)

i. Top-bottom { }
ii. Middle-top-bottom { }
iii. Bottom-top { }
iv. Mechanistic { }
v. Organistic { }

Section Five – Challenges of Organizational Knowledge Management

26) What in your opinion would be the most important benefits that accrue from good practices of knowledge and information management/ (They may select as many answers as may apply)

i. Fast decision making { }
ii. High staff retention { }
iii. High job satisfaction { }
iv. High profits { }
v. High staff motivation { }
vi. Faster acquisition of new skills { }
vii. Faster risk identification { }
viii. Reduction of cost of contingency plans { }
ix. Faster acquisition of useful knowledge { }
x. Faster acquisition of useful information { }
xi. Collaborative problem solving { }
xii. Better public relations services { }
xiii. Better resources management { }
xiv. Learning to work together { }
xv. Increasing learning enthusiasm { }

27) What criteria would you use for measuring the value of knowledge and information in your organization? (Please select as many answers as may apply)

i. By profits { }
ii. By knowledge sharing behaviour { }
iii. By new skills and capabilities staff acquire { }
iv. By amount of money spent on acquiring knowledge { }
v. By increased speed of solving problems { }
vi. Efficient resources use { }
vii. Number of staff trained per year { }
viii. By number of new useful ideas { }
ix. Addition of value to the organization { }
x. Not easy to measure { }
xi. Never attempted to measure { }
xii. The value is obvious { }
xiii. No known measurement criteria

28) What do you consider to be the greatest impediments to promoting access to knowledge in your organization? (Please select as many answers as may apply)

i. Inadequate learning facilities { }
ii. Information illiteracy in the organization { }
iii. Absence of knowledge management policy { }
iv. Little support from top management { }
v. Little understanding of the value of knowledge { }
vi. Lack of technology for knowledge management { }
vii. Absence of proof of the value of knowledge { }
viii. Limited information processing capacity { }
ix. Limited information processing capacity { }
x. People in the organization do not share knowledge for fear of losing positions of privilege and superiority { }
xi. Lack of appropriate tools for managing knowledge
xii. Those in privileged positions hoard knowledge { }
xiii. Lack of trust among organizational members { }
xiv. Intolerance for mistakes and need for help { }
xv. Culture of secrecy within the organization { }

xvi. Difficult changing people's attitudes to accept knowledge as an important organizational resource { }
xvii. Not being sure of knowledge management to add value to the organization's core business { }
xviii. Intolerance for mistakes and need for help { }
xix. Difficult changing people's attitudes to accept knowledge as an important organizational resource { }
xx. Not being sure of knowledge management to add value to the organization's core business { }
xxi. Difficult assessing value for money from knowledge management programmes { }
xxii. Lack of commitment { }
xxiii. Any other (Please list)----------

29) What do you propose should be done to promote access to knowledge and information in your organization?

i. ----------
ii. ----------
iii. ----------
iv. ----------
v. ----------
vi. ----------
vii. ----------
viii. ----------
ix. ----------
x. ----------
xi. ----------

30) Please suggest any topic/s of relevance to any aspect of knowledge management that you think should be discussed along with the ones covered on this interview schedule.

i. ----------
ii. ----------
iii. ----------
iv. ----------
v. ----------
vi. ----------
vii. ----------
viii. ----------
ix. ----------

Thank you for your cooperation and for taking time to respond to questions on this interview schedule.

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