

MANAGEMENT OF KNOWLEDGE ASSETS: A SURVEY OF ISO 9000 SERIES CERTIFIED ORGANIZATIONS IN KENYA

MUNAWEZA MULEJI

D53/OL/1081/02

KENYATTA UNIVERSITY LIBRARY
MAIN CAMPUS

KENYATTA UNIVERSITY LIBRARY

Research project submitted in partial fulfillment of the requirements for the degree of Master of Business Administration MBA (Finance) in the School of Business, Kenyatta University.

January 2007

Muleji, Munaweza
*Management of
Knowledge Assets: a*



2012/411289

DECLARATION

I declare that this is my original work and has not been presented for a degree in any other university.

MUNAWEZA MULEJI

D53/OL/1081/02

Signature: Munaweza Date: 31st January 2007

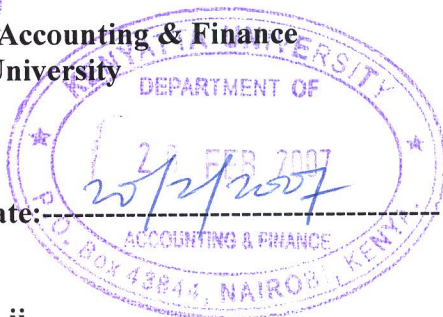
This research paper has been submitted for consideration with my approval as university supervisor.

Jagongo Ambrose
Lecturer
Department of Accounting & Finance
Kenyatta University

Signature: [Signature] Date: 20/2/07

Mr. R. Maganjo
Chairman, Department of Accounting & Finance
Kenyatta University

Signature: [Signature] Date: 20/2/2007



DEDICATION

I dedicate this work to my wife Moraa Munaweza, who has given me constant encouragement and my two sons Joshua Munaweza and Samuel Munaweza whose sense of curiosity is an inspiration.

ACKNOWLEDGEMENTS

This work owes a lot to the input of others, foremost being my supervisor Mr. Ambrose Jagongo. The chairman of the department and the department in general provided an effective administration machinery. The lecturers, in a variety of ways, contributed to my ability to undertake this research. In addition, there are many who have not been specifically named here but whose contribution is nonetheless invaluable.

LIST OF ABBREVIATIONS

IAF	International Accreditation Forum
ISO	International Organization for Standardization
QSAC	Quality System Accreditation Committee
SPSS	Statistical Package for Social Sciences
WTO	World Trade Organization

OPERATIONAL DEFINITION OF TERMS

Asset

An item that is expected to generate a flow of economic benefits to the organization

Competency modeling

The development of a set of skills and knowledge required for a particular role and the successful achievement of a task or tasks.

Community of practice

The process of learning that occurs when people who have a common interest in some subject or problem, collaborate to share ideas, find solutions, and build innovations.

ISO 9000 Quality management system certification issued under ISO Guides within the rules set up by Quality System Accreditation Committee under the International Accreditation Forum

Information

Data that has been organized within a context and translated into a form that has structure and meaning.

Innovation

The creation of something new or different; the conversion of knowledge and ideas into new benefit, such as new or improved processes and services.

Intangible Assets

Assets of an organization that have no physical existence or form.

Knowledge

Informative aspects of the mental process of comprehension and learning.

Knowledge is derived from information whose underlying patterns are understood.

Intellectual property

The sum of patents, copyrights, trademarks, brands, registered design, trade systems and processes whose ownership is granted to the organization by law.

Knowledge asset (or: Intellectual assets)

Those parts of the intangible assets of an organization that relate specifically to know-how, best practices and intellectual property.

Know-how

Skill or capability derived from knowledge and experience.

Knowledge acquisition

A process of capturing and bringing knowledge from the external environment into the internal context of an organization. A process that acquires new knowledge for the organization through training, recruitment of new staff, intellectual property licensing and benchmarking.

Knowledge creation

A process of developing new knowledge assets for an organization. A process that leads to new knowledge to the organization through research.

Knowledge generation

A process that yields new knowledge to the organization through routine operations or the development of new products.

Knowledge identification

The process that identifies knowledge through review of projects and competency modeling.

Knowledge management

The processes, technologies and organizational structures that harness and promote the acquisition or generation and exploitation of know-how and experience for the benefit of the organization.

Knowledge management systems

The systems in an organization for the creation, sharing, learning, enhancing, organizing and utilization of knowledge for the benefit of the organization and its customers.

Knowledge measurement

The process of quantifying the impact of knowledge using such practices as intellectual capital accounting and competency modeling.

Knowledge replication

The process of regeneration of knowledge through best practice transfer and on-the-job training.

Knowledge sharing

A process by which knowledge is disseminated across an organization. A process of sharing knowledge within the organization through strategic planning and communities of practice.

Knowledge storing and organization

The process that capture and maintain an organized record of knowledge in an organization through standard operating practices and databases.

Standard & Poor

The Standard & Poor's Corporation is a subsidiary of Mc-Graw-Hill. It performs financial research and analysis on stocks and debt instruments. It also generates S& P 500, a stock market index on the based on the performance of 500 selected companies on the New York Stock Exchange.

LIST OF FIGURES

- Figure 1** Knowledge management processes and assets.....Page 3
- Figure 2** Leavitt's diamond organization model.....Page 18
- Figure 3** Knowledge management as a system.....Page 21
- Figure 4** Prevalence of knowledge management practices.....Page 31
- Figure 5** Statistically significant linkage between knowledge practices that should be improved based on the knowledge practice already implemented.....Page 35
- Figure 6** Who externally causes the adoption of knowledge management practices in organizations?.....Page 38
- Figure 7** Who internally causes the adoption of knowledge management practices in organizations?.....Page 39

LIST OF TABLES

- Table 1** Organizational challenges to knowledge assets managementPage 17
- Table 2** Reasons for use of knowledge management practices.....Page 32
- Table 3** Pearson's chi-square measure, between knowledge management practice and results.....Page 37
- Table 4** Response to implementation of knowledge management practices.....Page 42

CONTENTS	Page
Declaration.....	ii
Dedication.....	iii
Acknowledgements.....	iv
List of Abbreviations & Operational Definition of Terms.....	v
List of Figures & Tables.....	viv
Abstract.....	xii

CHAPTER 1 INTRODUCTION

1.1 Background	1
1.2 Statement of the problem.....	7
1.3 Objectives of the study.....	9
1.4 Research questions.....	10
1.5 Significance of the study.....	11
1.6 Scope of study.....	12
1.7 Limitations of the study.....	12

CHAPTER 2 LITERATURE REVIEW

2.1 Knowledge assets & knowledge management	13
2.2 Generating & applying knowledge assets.....	15
2.3 Knowledge assets & systems framework	16
2.4 Organizational challenges to knowledge assets management.....	17
2.5 Knowledge assets & organizational strategy	18
2.6 Measuring knowledge assets.....	19
2.7 Summary of literature review.....	20
2.8 Conceptual framework.....	21

CHAPTER 3 METHODOLOGY

3.1 Introduction.....	23
3.2 Study design.....	23
3.3 Target population.....	23
3.4 Sampling frame.....	24
3.5 Pilot study.....	26
3.6 Data collection instruments.....	26
3.7 Data collection procedure.....	27
3.8 Data analysis.....	28

CHAPTER 4 DATA ANALYSIS & INTERPRETATION

4.1 Introduction.....	29
4.2 Background variables.....	29
4.3 Knowledge management practices.....	30
4.4 Reasons for use of knowledge management practices.....	32
4.5 Improvements in knowledge management practice.....	33
4.6 Results of knowledge management.....	36
4.7 Effectiveness of knowledge management practices.....	38
4.8 Causes for adoption of knowledge management practices.....	38
4.9 Role models in knowledge management.....	40
4.10Resources allocated to knowledge management.....	41
4.11Implementation of knowledge management practices.....	41
4.12Financial management benefits of knowledge management.....	42
4.13Value of knowledge assets.....	43
4.14Summary of findings.....	44

CHAPTER 5 CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions	47
5.2 Recommendations.....	49
5.3 Suggestions for further research.....	50

REFERENCES.....	51
-----------------	----

APPENDICES.....	58
-----------------	----

Appendix I Questionnaire transmittal letter.....	59
--	----

Appendix II Questionnaire.....	60
--------------------------------	----

Appendix III Work plan.....	69
-----------------------------	----

Appendix IV Budget.....	70
-------------------------	----

Appendix V Target population.....	71
-----------------------------------	----

ABSTRACT

Creation of value is shifting from the tangible to the intangible. In 1998 only 15% of the market value of the Standard & Poor 500 companies in the United States of America was represented through their tangible assets, 85% of the market value was assigned to intangible assets (Daum, 2001). In addition, for an organization to grow and prosper, it has to develop a capacity to respond well to changes in its environment. Receptiveness to change is best managed in a 'learning organization' that manages and effectively utilizes its knowledge assets (McKenna, 2000). The question is whether organizations in Kenya, in particular ISO 9000 certified ones, are equipped to create value using their knowledge assets. This study examined the management of knowledge assets in ISO 9000 series certified organizations in Kenya and sought to identify the perceived benefits of knowledge assets in ISO 9000 series certified organizations in Kenya. This study will be of immediate use to ISO 9000 series certified organizations in Kenya in particular and generally to the wider corporate sector in Kenya and add to the body of knowledge on management of knowledge assets. In the survey, there was literature review and fieldwork. The target population was ISO 9000 series certified organizations in Kenya from which a sample was picked randomly and subjected to a questionnaire. Data was analyzed using descriptive statistics with the aid of SPSS. The findings show that to a large extent there is generation, acquisition and use of knowledge assets to the financial benefit of ISO 9000 organizations. They also show that staff size and level of turnover of organizations have a large bearing on the extent of adoption of knowledge management practices. The researcher, based on the study findings, recommends urgent improvement in research. Where knowledge processes are in use, improvement in on-the-job training and competency modeling is likely to yield most benefits and should be prioritized.

CHAPTER 1 – INTRODUCTION

1.1 THE BACKGROUND

1.1.1. KNOWLEDGE MANAGEMENT

Empirical economic analysis reveals that in the 1990s, the source of value creation shifted from tangible to intangible assets. In 1982 the value of tangible assets of Standard & Poor 500 companies in the United States of America made up 62% of the market value of the companies. In 1998, however, only 15% of the market value of Standard & Poor 500 companies was represented by tangible assets, 85% of the market value was assigned to intangible assets.

Furthermore, mission, competition, performance and change are the four most important agenda in business according to Davidson (1996). We live in a generation in which change is a constant and accelerating factor of life and business. There is therefore a pressing demand for change. There is a view that for an organization to grow and prosper, it has to develop a capacity to respond well to changes in its environment. (McKenna, 2000). The challenge then lies in the reaction to change. Davidson (1996) captures the need for transforming management in response to the social-change-synergy that is now confronting organizations. The underlying message is that organizations must begin to learn how to manage change. Nowadays it is acknowledged that receptiveness to change is promoted by creating a 'learning organization' (McKenna, 2000). It is acknowledged that a learning organization is proficient at generating, obtaining, and disseminating knowledge and at modifying behaviour to reflect new knowledge and insights (Garvin, 1993).

The '3Ms' of learning organizations have been outlined as follows (Garvin, 1993): i) Meaning; which means skill at creating, acquiring, and transferring knowledge and at consequently modifying its behaviour. ii) Management; which means evidence of systematic problem solving, experimentation, learning from others and transferring knowledge throughout the organization. iii) Measurement; which means ways are devised to assess the organization's rate and level of learning to ensure that gains have been made.

As organizations become more attentive to knowledge assets, even strategic planning processes are increasingly becoming part of knowledge management systems (Grant, 2002). Imparato and Harari (1994) argue that improvements in an organization are obtained when information flow and associated processes are used as an organizing principle. Knowledge spreads to all parts of the organization and the organization becomes an intangible reservoir of collective wisdom. This is based on the premise that responsibility for thinking, judgment and creativity exists everywhere in the organization (Imparato and Harari, 1994) also state that success is measured not just by productivity goals but also by growing the intelligence and capabilities of the organization.

1.1.2 KNOWLEDGE ASSETS & KNOWLEDGE MANAGEMENT

It has been argued that the underlying drivers of change today – globalization and technology- demand innovation. Globalization breeds marketplace diversity, innumerable competitors, more choices for customers, and a variety of opportunities. Technology introduces speed as a basis of competition and puts pressure on organizations to dismantle hitherto effective structures (Imparato and Harari, 1994). In adapting to changes in the environment, through organizational learning and innovation, knowledge assets are central. Knowledge management then address the possible management practices that an organization may implement in order to continuously maintain and develop its knowledge assets in the face of an ever changing environment.

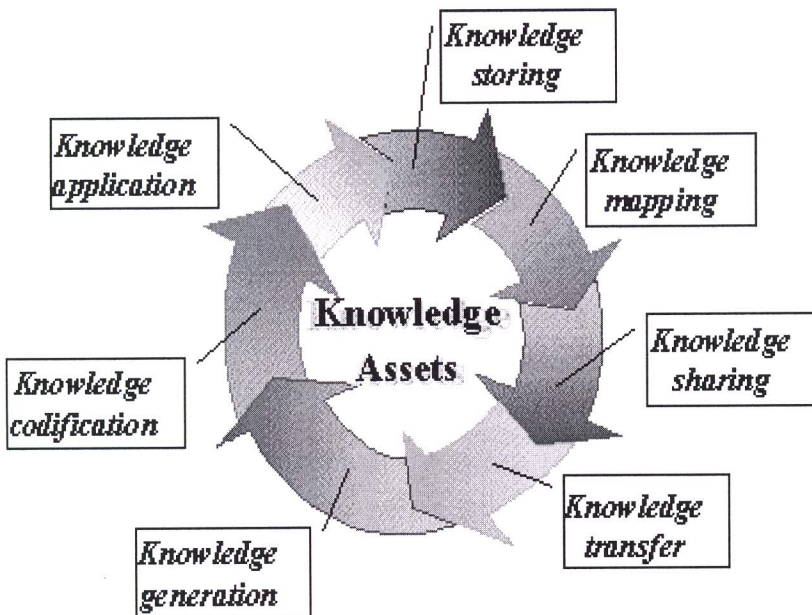


Fig. 1 Knowledge management processes and knowledge assets

(Adapted from Marr and Schiuma, 2001)

1.1.3 KNOWLEDGE MANAGEMENT

Knowledge management helps the front-line staff who interact with customers to ensure consistency, accuracy and repeatability. It helps business managers towards making sound decisions enabled by accurate, complete and relevant information. Knowledge management assists managers with their mentoring and coaching skills (Robertson, 2004).

Loss of key staff can have a major impact on the level of knowledge in an organization. Knowledge management can assist by putting in place a structured mechanism for capturing or transferring this knowledge within the organization. Innovation is necessary in ensuring long-term survival, growth; and innovation is nurtured by knowledge management (Robertson, 2004).

In a study on small, manufacturing firms in the United Kingdom it was found that innovativeness is dependent on knowledge and learning, and leads to a superior performance (Chaston et al, 2001). A case study of integrating knowledge management into the supply chain management process found that supply chain management would benefit from the incorporation of knowledge management (Shaw, Nancy C. et al, 2002). An empirical study on knowledge management strategies, innovation and firm performance in Spain shows that there is significant relationship between performance of a firm and its efficiency in the transmission and application of existing knowledge (Gomez and Manzanares, 2004).

Klaus North, Rudiger Reinhardt and Alexandra Schmidt (2004) show in an empirical study that knowledge management has a number of benefits in process improvement and higher employee performance from the balanced score card perspective. In terms of processes the benefits realized were in process acceleration, reduction of redundancies and re-use of internal knowledge. For employees the main benefits were increase in motivation, enhancement of personal knowledge base and shorter periods of induction for new employees. In relation to customers, knowledge management leads to an increase in the quality of products and services. In the financial function, knowledge management leads to improved risk management, reduced administration costs and increase in turnover.

1.1.4 ISO 9000 SERIES QUALITY MANAGEMENT SYSTEMS

ISO 9000 series is a quality management system by the International Organization for Standardization (ISO), developed and maintained by the ISO Technical Committee.

ISO 9000 series standards are based on eight principles: customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making and mutually beneficial supplier relationships. The key benefits associated with these principles include: improved customer loyalty, better motivated staff, higher staff innovation and creativity, lower costs and shorter cycle times, focus on the key processes, performance improvement, informed decisions and optimization of costs and resources (ISO, 2000).

Typical goals in implementing ISO 9000 quality management system include: more efficiency and profitability, consistently meet customer requirements, maintain or increase market share, improve communications and morale, reduce costs and liabilities and increase confidence in the service or production system (ISO, 2000). The ISO 9000 series standards are periodically reviewed to benefit from quality management field and from user feedback. This helps maintain their effectiveness. The ISO Technical Committee is made up of experts from businesses and other organizations around the world, it monitors the use of the standards to determine how they can be improved to meet changing user needs and expectations (ISO, 2000).

1.2 STATEMENT OF THE PROBLEM

Knowledge assets are the intangible assets of an organization such as know-how, best practices and intellectual property. These assets are often divided into human (people, teams, networks and communities); structural (the codified knowledge that can be found in processes and procedures); and technological (the technologies that support knowledge sharing) (Grant, 2002). Knowledge assets are critical to an organization because they nurture innovation (Robertson, 2004) and are perceived as a means of generating and maintaining a competitive edge which sustains long term survival and growth. The question is whether organizations in Kenya make such use of their intangible assets and employ knowledge management to do so.

According to McKenna (2000), knowledge management has implications for the whole organization and covers processes and technologies to harness the know-how and experience of employees. There are organizations in Kenya that are ISO 9000 series certified (Appendix 1). According to the Kenya Bureau of Standards, this certification yields reduction of costs, shorter cycle times through effective and efficient utilization of resources, flexibility and quick responses to changing market or customer needs and expectations (Kenya Bureau of Standards, 2005). These are benefits similar to the ones expected from the practice of knowledge management.

There are similarities between ISO 9000 practice and knowledge management practice. For example, the process of knowledge storage and organization involves practices that are similar to those required for documentation under the ISO 9000 series. Although ISO 9000 series certification does not require all of the knowledge management practices, ISO 9000 certified organizations are a valid sample of organizations that practice knowledge management. For organizations in Kenya in general, and those that are ISO 9000 series certified in particular, there is a need to study their management of knowledge assets since such assets are important for innovation and long term survival and growth (Robertson, 2004). The problem for the study then is: How do ISO 9000 series certified organizations in Kenya manage their knowledge assets to generate benefits?

1.3 OBJECTIVES OF THE STUDY

General Objectives

The objective of this study was to survey the management of knowledge assets in ISO 9000 series certified organizations in Kenya.

Specific Objectives

1. To establish the extent to which ISO 9000 series certified organizations in Kenya generate knowledge.
2. To investigate the methods used by ISO 9000 series certified organizations in Kenya to acquire knowledge.
3. To identify the perceived financial benefits of knowledge assets to ISO 9000 series certified organizations in Kenya.
4. To identify means and ways of improving knowledge generation and acquisition amongst the ISO 9000 series certified organizations in Kenya.

1.4 RESEARCH QUESTIONS

This study was guided by the following research questions:

1. What is the extent to which ISO 9000 series certified organizations in Kenya generate knowledge?
2. What are the methods used by ISO 9000 series certified organizations in Kenya to acquire knowledge?
3. What are the perceived financial benefits of knowledge assets to ISO 9000 series certified organizations in Kenya?
4. What are the means and ways of improving knowledge generation and acquisition amongst the ISO 9000 series certified organizations in Kenya?

1.5 SIGNIFICANCE OF THE STUDY

It is believed that organizations, in utilizing their knowledge assets, stand a good chance of growth and prosperity under highly competitive circumstances (Grant, 2002). This study has significance at a variety of levels to a range of stakeholders. To ISO 9000 series certified organizations, and other organizations in Kenya, this study will clarify factors affecting management of knowledge assets. It will point out ways in which the practice of knowledge management can be improved. This study will assist managers of these organizations in executing their duties. It will also help nurture innovation in these organizations (Robertson, 2004).

To the Federation of Kenya Employers, Kenya Association of Manufacturers and the Chambers of Commerce, and such other bodies, the study findings and recommendations can be disseminated to their member organizations. This study will provide the Ministry of Trade & Industry, the Investment Promotion Centre, the Kenya Bureau of Standards and other departments and ministries of Government with an empirical study on the status on management of knowledge assets in Kenya and the ways in which knowledge management can be used to be increase the competitiveness of organizations.

To the researcher this study increased his ability to contribute to the debate on knowledge assets and knowledge management. To other researchers this study will provide additional findings and provide avenues for further research. To the practitioners of knowledge management this study will be an additional reference work based on an empirical study. This study will also add to the body of knowledge on the practice of the management of knowledge assets in Kenya.

1.6 SCOPE OF THE STUDY

This study surveyed the practice of management of knowledge assets in ISO 9000 series certified organizations in Kenya. It explored methods of generating knowledge and how those methods could be improved. This study also examined the perceived financial benefits of the knowledge assets and knowledge management in ISO 9000 series organizations.

1.7 LIMITATIONS OF THE STUDY

The researcher experienced some resistance towards participating in the survey mainly due to perceptions that organizational secrets would be compromised. The researcher sought to allay these fears by underlining the confidential nature of the exercise, clarifying the nature of the information required and the non-threatening use to which it would be put.

CHAPTER 2 – LITERATURE REVIEW

2.1 KNOWLEDGE ASSETS & KNOWLEDGE MANAGEMENT

Knowledge management is an umbrella term that covers processes and technologies to harness and exploit the know-how and experience of employees (McKenna, 2000).

In an empirical study Okunoye and Karsten (2002) found that knowledge management is not just about managing knowledge-work processes or the people that carry out these processes; technology and organizational structure are also factors.

In seeking further understanding of knowledge management it is useful to ask two questions at this point: what is knowledge and what is management? Knowledge is defined as what we know, it involves the mental processes of comprehension and learning that occur in the mind. As a person receives new messages they comprehend and incorporate them into their own knowledge structures. These structures are unique to each person as they are biographically determined (Schutz, 1967).

Data can be considered as an observation out of context, without meaningful relation to anything else. Information is an understanding of the relationships between pieces of data, or between pieces of data and other information (Bellinger, 2004). Beyond relation there is pattern (Bateson, 1988). Pattern embodies a consistency and completeness of relations which, to an extent, also creates its own context. Pattern has an implied repeatability and predictability and provides an archetype (Senge, 1990).

When a pattern relation exists amidst data and information, the pattern has the potential to represent knowledge. The pattern only becomes knowledge when one is able to realize and understand the pattern and its implications. The pattern representing knowledge tends to be self-contextualizing; to represent a high level of reliability on how the pattern will evolve; and to exhibit completeness (Bellinger, 2004). Wisdom arises when one understands the foundational principles responsible for the patterns representing knowledge. These foundational principles are universal. They are completely context independent (Bellinger, 2004).

The result of interest and research in resources and capabilities of firms has led to a knowledge-based view of the firm in which the firm is considered as a set of knowledge assets. The role of the firm in creating and deploying these assets to create value becomes central (Grant, 2002). Knowledge assets are those parts of the intangible assets of a organization that relate specifically to knowledge, such as know-how, best practices and intellectual property. Knowledge assets are often divided into human (people, teams, networks and communities); structural (the codified knowledge that can be found in processes and procedures); and technological (the technologies that support knowledge sharing such as databases and intranets) (Grant, 2002).

2.2 GENERATING & APPLYING KNOWLEDGE ASSETS

Grant (2002) also argues that the second major component of knowledge management is the distinction between *knowledge generation* and *knowledge application* processes. He further argues that in the area of knowledge generation it is possible to further distinguish between *knowledge creation* (internal generation of knowledge) and *knowledge acquisition* (absorbing existing knowledge from outside the organization).

Knowledge is generated by creation, through research; or acquired, through training, recruitment, intellectual property licensing and benchmarking. Knowledge application can take the form of strategic planning and development of communities of practice, best practice transfer and on-the-job training, competency modeling, intellectual property accounting and new operation and product development.

2.3 KNOWLEDGE ASSETS & SYSTEMS FRAMEWORK

Senge (1990) poses a learning dilemma that questions whether people really learn, which challenges the effectiveness of knowledge management. He argues that many organizations have learning disabilities. He points out that we each have a breadth of space and time called a learning horizon within which to assess our effectiveness. Therefore when our actions have consequences beyond our learning horizon, it becomes impossible to learn from direct experience.

Senge (1990) further argues that structure influences behaviour and that people, however they may seem different, tend to produce the similar results when placed in the same system. His position is that learning is merely reactive when it addresses events, responsive when it addresses patterns of behaviour and only becomes generative when it deals with systemic structure. It follows from his arguments that if knowledge management is to have an impact on an organization, it should be directed at learning that addresses systemic structure. In a nutshell, Senge's position is that effective knowledge management must be conducted within a systems framework. On the other hand it has been argued that the reality experienced by many managers is different from what the learning organization stands for, and its objectives are not easily achievable in a cost-conscious environment (Sloman, 1994). Coopey (1995) offers a critique in a similar vein.

2.4 ORGANIZATIONAL CHALLENGES TO KNOWLEDGE ASSETS MANAGEMENT

Knowledge management faces the challenges associated with organizational change process.

Barrier	Description
Internal focus	The 'not invented here' syndrome rejects external idea
Lack of credibility	Recommendations, reports and information is considered biased
Secrecy	Access to required information is denied
Lack of proper skills	Implementation is in the hands of people with no relevant skills
Lack of resources	Inadequate resources allocated to the exercise
Lack of discipline	Criteria for selection of projects weak or inconsistently applied
Lack of strategy	Conflicting priorities and general confusion arises
Metrics are misused	Undue precision is claimed when dealing with estimates
Oversimplifying	Little or no analysis done to develop proper understanding
Reluctance to change	New practices upset status quo and are resisted
Power and politics	Change hampered by organizational politics and power relations

Table 1: Organizational challenges to knowledge assets management

(Adapted from Klaus North et al, 2004)

While the need to achieve efficiency in creating and storing knowledge calls for specialization, on the other hand production and service delivery call for the integration of different types of knowledge. This challenge of integrating knowledge without losing the efficiencies of specialization is addressed partly by developing rules, routines and common knowledge (Grant, 2002).

2.5 KNOWLEDGE ASSETS & ORGANIZATIONAL STRATEGY

Unless effectively utilized and applied, knowledge assets may not necessarily yield any returns in terms of financial performance measures (Malhotra, 2001). Knowledge assets, like the tangible assets, are worth investing only in the context of strategy. The process of defining and managing knowledge assets is that much more useful when the organization is clear about what it intends to do with them.

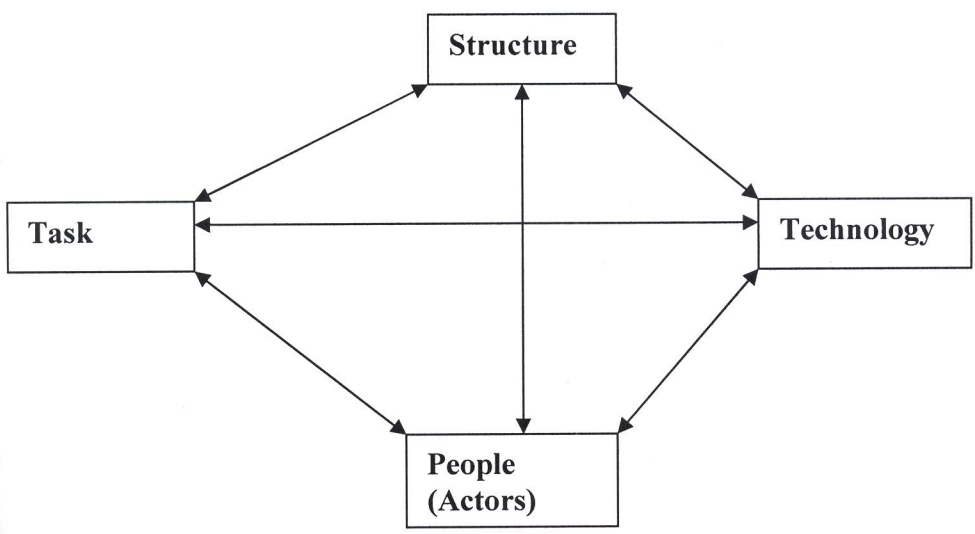


Figure 2: Leavitt's diamond organization model

Okunoye and Karsten's empirical study findings support the view that the value of knowledge management is brought out only when the four organizational dimensions of task, structure, people and technology are balanced. Bhatt (2001) and Duffy (2001) are of the same view.

2.6 MEASURING KNOWLEDGE ASSETS

Traditional accounting was developed for the industrial economy, where organizations invested intensively in tangible assets-inventory, equipment, machines and other such items.

In a knowledge-based view, investment shifts to intangible assets- patents, processes, trademarks, know-how and such others.

There are six different approaches to knowledge assets valuation (Deutscher, 2005).

i) Acquisition cost

This method recognizes the historical acquisition cost, not the value.

ii) Repossession cost.

This method is based on the current cost of acquiring the assets.

iii) Market value

Where there have been transactions involving the asset, the market determined value is used.

iv) Comparables

The value of knowledge assets is determined by comparing organizations within the same industry.

v) Market capitalization and book value

The difference between the market capitalization and book value of an organization is used to value knowledge assets.

vi) Discounted cash flow method

This method uses the expected cash flows, discounted to present value to determine the value of knowledge assets

2.7 SUMMARY OF LITERATURE REVIEW

Empirical studies have established that knowledge management yields benefits. These benefits include innovation which is critical to the long term survival of organizations. The processes of knowledge management are creation, acquisition, generation, sharing, replication, storage and organization, measurement and identification of knowledge. There are similarities between ISO 9000 practice and knowledge management practice. For example, the process of knowledge storage and organization involves practices that are similar to those required for documentation under the ISO 9000 series. However, ISO 9000 series certification does not require all of the knowledge management practices, it requires an appreciable level of knowledge asset management.

Knowledge assets are maintained by knowledge processes. It is important for the management of knowledge assets to be contextualized within a systems approach of the organizations with clearly identified fit with the strategic orientation of the organization.

Establishing the financial value of knowledge assets is important in helping investors and decision-makers to competently handle the risky venture of investing in knowledge assets.

There are a number of methods of measuring the value of knowledge assets.

The traditional balance sheet provides a picture of historical costs, assuming the cost of purchase reflects the actual value of an asset. Even specific types of intellectual capital such as patents, copyrights and trade marks are recorded at registration cost not their potential value in use. This does not account for the hidden value inherent in people's skills, expertise and learning capabilities, networks and other structural aspects.

On the other hand, measuring knowledge assets using market value makes two key assumptions: that the stock market values the organization as a bundle of tangible and intangible assets; and that the difference between the market and book value is a proxy for the value of knowledge assets.

In equilibrium, the market valuation of any asset results from the interaction between the capitalization of the firm's expected rate of return from investment in that asset and the market supply of capital for that type of asset (Hall, 1993a).

CHAPTER 3 – THE METHODOLOGY

3.1 INTRODUCTION

This chapter looks at the study design, target population, sampling frame, pilot study, data collection procedure and data analysis.

3.2 STUDY DESIGN

This study was a survey on knowledge management in ISO 9000 series certified organizations in Kenya. A survey was chosen because it is an efficient method of gathering information about the population without having to interview every organization (Holton & Burnett, 1997). This is an empirical study and the survey method facilitated collection of primary data. The population of ISO 9000 series certified organizations was large enough to sustain a survey that was representative and generalizable. A sample was selected randomly from the population.

3.3 TARGET POPULATION

The target population of the study was ISO 9000 series certified organizations in Kenya. There were 116 (appendix IV) such organizations according to the April 2005 report of the Quality Systems Accreditation Committee (QSAC) unit based at the Kenya Bureau of Standards.

3.4 SAMPLING FRAME

The sample for this study was obtained by sampling from the population of the 116 ISO 9000 series certified organizations as at April 2005. The sample size was 30% of the population, (Mugenda, 2003). The population, excluding pre-tested organizations, was arranged in alphabetical order and numbered in ascending order. A random number generator in the Microsoft suite was used to obtain random numbers which were then used to select the corresponding organizations from the population list. The target respondent in each organization was the Quality Control Manager or equivalent position in the organization. The sampled organizations, arranged in alphabetical order, were:

Aga Khan Hospital, Nairobi
Agrochemical and Food Company Limited
Ashut Engineers Limited
Athi River Mining Company Limited
Atlas Copco Eastern Africa Limited
Bags & Balers Company Limited
Bamburi Special Products
Central Glass Industries Limited
Coates Brothers East Africa Limited
Document Handling Limited
East African Packaging Industries
Epcu Builders Company Limited
Fina Bank Company Limited

General Motors Limited
General Plastics Limited
Glaxosmithkline Kenya Limited
Kenya Electricity Generating Company Limited
Kenya Maltings Limited
Nation Media Group
Mabati Rolling Mills
Sadolin Paints Company Limited
Sameer company Limited
SDV Transami
Standard Chartered Bank Kenya Limited
Slumberland Kenya Limited
Steadman Research Services Limited
Strathmore University
Sumaria Industries Limited
Tetrapak
Total Kenya Limited
Treadsetters Tyre Limited
Triad Architects
UAP Provincial Insurance Company Limited
Unga Limited
Unilever

3.5 PILOT STUDY

There was a pre-test questionnaire on organizations which constituted 1% of the sample population. The pre-test organizations were obtained from a list of the population arranged in alphabetical order and numbered in ascending order. A random number generator in the Microsoft suite was used to obtain random numbers which were then used to select the corresponding organizations from the population list. The pre-test respondents were excluded from the main study sampling. The responses to the pilot were reviewed and the questionnaire finalized and coded. Based on the pilot study experience, the researcher endeavoured to explain technical terms in the questionnaire to the respondents soon after delivering the questionnaire to the respondent.

3.6 DATA COLLECTION INSTRUMENTS

Data collection was done using a questionnaire. Questionnaire method was chosen because they permit standardized questions, easier data collection and efficient use of time (Mugenda, 2003). The standardized questions had the advantage of limiting the influence of the researcher on the interpretation of the questions by the respondents. The questions used were mainly close ended and a number were on a five-point Likert scale. There were also some open ended questions.

3.7 DATA COLLECTION PROCEDURE

The researcher called each respondent, followed by an e-mail to explain the nature of the study and what was required of the respondent. They were assured of the confidentiality with which the data would be handled. The email had the questionnaire attached. Most of the respondents were able to fill out the questionnaire and email it back to the researcher. In other instances the respondents printed out the questionnaire, filled it and thereafter asked for it to be picked. In a few instances the respondents requested for a scheduled meeting with the researcher during which the questionnaire was administered.

3.8 DATA ANALYSIS

The researcher checked that each questionnaire had been duly completed. The researcher counted the completed questionnaires to determine the response rate. Since the response rate was over 60% (American Association for Public Opinion Research, AAPOR, 2000), the researcher proceeded with other aspects of data analysis. The questionnaire data was analyzed to assess the practice of knowledge creation, acquisition, generation, sharing, replication, storage and organization, measurement and identification in ISO 9000 series certified organizations in Kenya. The data was analyzed for the extent of the impact of knowledge management on the finance and accounting function and for factors that hinder the practice of knowledge management in ISO 9000 series certified organizations in Kenya. The data was subjected to analysis using excel worksheets on Microsoft windows office suite.

It was further analyzed using Statistical Package for Social Sciences. This entailed coding the data, categorizing and cleaning. An analysis plan was prepared and SPSS was run for frequency distribution. Further analysis with cross-tabulation generated Pearson chi-square with two degrees of freedom. Type II errors were mitigated by sample size that is more than twenty, furthermore the level of significance was set at 95%.

CHAPTER 4 – DATA ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

This chapter presents an analysis of the data collected and the findings of the study on management of knowledge assets. The data was entered into tally sheets and then tabulated. The tables were converted into percentages using excel spreadsheet. The information was displayed in a graphical format for ease of comprehension and comparison. All the organizations surveyed practice knowledge management. The response rate of 76% provides a basis for valid and reliable conclusions on management of knowledge assets.

4.2 BACKGROUND VARIABLES

Of the organizations surveyed, 4% had no more than 50 employees, 52% had between 51 and 250 employees, 44% had over 250 employees. On the other hand 20% had annual turnover below Kenya shillings 250 million; 15% a turnover of between Kenya shillings 250 million and Kenya shillings 500 million; and 65% had annual turnover exceeding Kenya shillings 500 million. The organizations were active in manufacturing and in service provision with a mix of multinationals and local companies and 40% of the respondent organizations had branches out of Nairobi. The questionnaires were all filled out by the Quality Assurance Manager or equivalent. This means that most of the organizations sampled have employees more than 50 employees; and a majority of organizations have between 51 and 250 employees. It also means that a majority of the organizations sampled have a turnover exceeding Kenya shillings 500 million.

4.3 KNOWLEDGE MANAGEMENT PRACTICES

For knowledge creation 44% of the respondent organizations use research. In knowledge acquisition, 96% of the organizations use training, 80% rely on recruitment and 68% on benchmarking with only 32% using intellectual property licensing. In knowledge generation, operations was cited by 84% of the respondents and new product development by 80%. Strategic planning as cited by 92% of the respondents and communities of practice by 37% as the means used for knowledge sharing. In knowledge replication, on the job training was cited by 96% of the respondents while best practice was cited by 79%. In storage and organization of knowledge standard operating practices were cited by 84% of the respondents and databases by 72%. Only 16% of the respondents use intellectual capital accounting for knowledge measurement while 52% use competency modeling. In knowledge identification, project reviews are used by 60% of the respondents while competency modeling is used by 67%.

The results show that all knowledge management processes are in use but at different levels of utilization. On the basis of modal frequency, the most commonly used knowledge processes are acquisition (96%) and replication (96%) followed by sharing (92%) and then generation (84%), storage and organization (84%), identification (67%), measurement (52%) and creation (44%). It is clear that knowledge creation and knowledge measurement are the least used knowledge processes.

Pearson's chi-square test shows, at 95% level of confidence, that only the use of research, is statistically significantly positively influenced (0.034) by the number of employees; while benchmarking (0.001), best practice transfer (0.004) and standard operating practices (0.012) are statistically significantly positively influenced by the level of turnover of the organization. This means that as the number of employees grows the use of research is likely to increase possibly because research staff members are also employed. On the other hand as turnover increases so do benchmarking, best practice transfer and standard operating practices, most probably in order to protect or further raise turnover and market share.

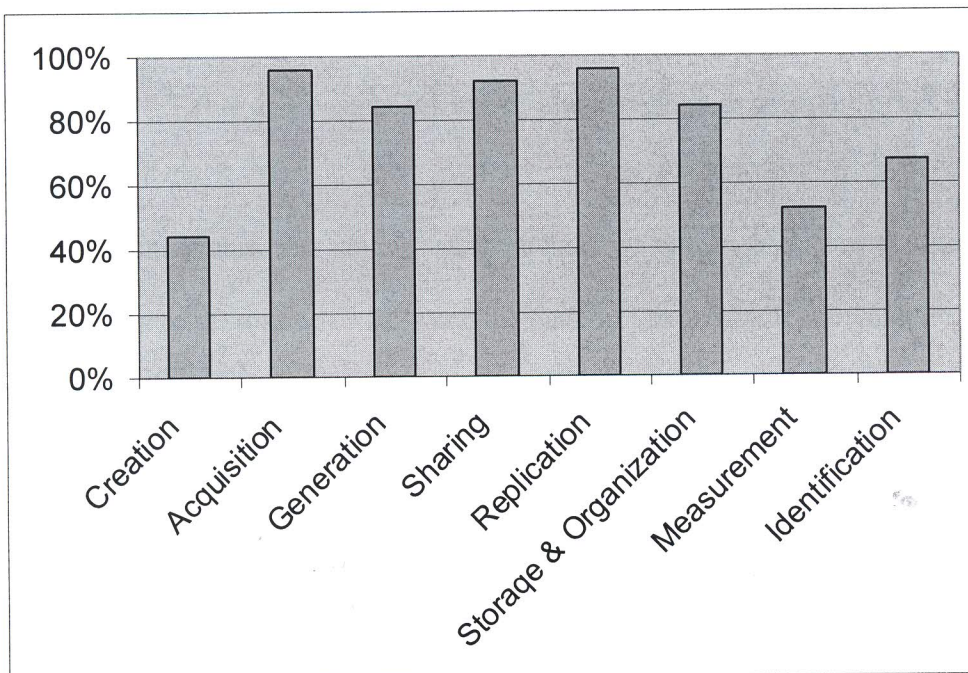


Figure 4: Prevalence of knowledge management practices

4.4 REASONS FOR USE OF KNOWLEDGE MANAGEMENT PRACTICES

The leading reason for use of knowledge management practices is to promote sharing and transfer of knowledge among employees. The other main reasons are to profile the organization as up-to-date, identify knowledge among employees, promote sharing and transfer of knowledge with customers, suppliers and the industry at large, in that order.

	REASON	% of valid Respondents
1	To promote sharing and transfer of knowledge among employees	100
2	To profile the enterprise as an up-to-date organization	88
3	To identify unspoken (tacit) knowledge among employees	76
4	To promote sharing and transfer of knowledge with customers	72
4	To promote sharing and transfer of knowledge with suppliers	60
6	To promote sharing and transfer of knowledge with the industry	60
7	To promote innovation and creativity	4
8	To retain leadership in industry	4

Table 2: Reasons for use of knowledge management practices

Pearson's chi-square test shows, at 95% level of confidence, that the need to profile an organization as up-to-date (0.023) and the need to identify tacit knowledge among employees (0.015), are statistically significantly positively influenced by the level of turnover. This means that as turnover increases, there is an increased likelihood of using knowledge management practices to tap into the knowledge employees have and to portray the organization as up-to-date.

4.5 IMPROVEMENT IN KNOWLEDGE MANAGEMENT PRACTICES

The respondents pointed out a variety of knowledge management practices that they thought needed improvement. The leading area for improvement was in research (70%), followed by training (67%), benchmarking (58%), operations (58%) and best practice transfer (58%). This clearly shows that organizations are perceived to be undertaking inadequate levels of research. It also points towards a persistent search for improvement in aspects of knowledge management, for example all organizations undertake training yet 70% of the respondents feel that there is room for improvement.

Pearson's chi-square test shows, at 95% level of confidence, that the need for improvement in on-the-job training is statistically significantly positively linked to organizations that have the knowledge management practice of any of research (0.046), intellectual property licensing (0.029) or recruitment (0.012). The test shows that the need for improvement in competency modeling is statistically significantly positively linked to organizations that have the knowledge management practice of any of databases (0.016), recruitment (0.022) or benchmarking (0.036). The test further shows that the need for improvement in training is positively, statistically significantly, linked to organizations that have the knowledge management practice of strategic planning (0.037).

The Pearson's chi-square test shows that the need for improvement in database is statistically significantly positively linked to organizations that have the knowledge management practice of any of intellectual property licensing (0.042) or competency modeling (0.021). The Pearson's chi-square test also shows that the need for improvement in standard operating practices is statistically significantly positively linked to organizations that have the knowledge management practice of any of benchmarking (0.036) or competency modeling (0.036). The test shows that the need for improvement in strategic planning is statistically significantly positively linked to organizations that have the knowledge management practice of new product development (0.017). The test shows that the need for improvement in intellectual property licensing is statistically significantly positively linked to organizations that have the knowledge management practice of communities of practice (0.010). Lastly the Pearson's chi-square test shows that the need for improvement in communities of practice is statistically significantly positively linked to organizations that have the knowledge management practice of project reviews (0.035).

The implication is that where knowledge management is in use, the key knowledge management practices to improve are on-the-job training and competency modeling. Improvement in on-the-job training is required where research, recruitment or intellectual property knowledge management practices are in implemented. Improvement in competency modeling is required where recruitment, benchmarking, or databases knowledge management practices are in use.

4.6 RESULTS OF KNOWLEDGE MANAGEMENT

All the respondents indicate that knowledge management has yielded positive results. The benefit cited by the all respondents is improved client and customer relations. Improved employee efficiency; improved employee skill and knowledge; and improved worker involvement in workplace activities were cited by 96% of the respondents. Improved flexibility in production and innovation was also cited by 88% of the respondents. Better vertical knowledge sharing was cited by 84% of the respondents. Improved adaptation of products and services to client requirements was cited by 80% of the respondents.

The other benefits cited by the respondents are better horizontal knowledge sharing (76%) ; improved corporate or organizational memory (68%) ;increase in new products or service (68%); new partnerships (48%); and improved ability to obtain knowledge from other business enterprises and trade literature (56%); and new partnerships (48%). Pearson's chi-square test shows that the knowledge practices are significantly related to benefits as shown in the table below. The implications are that knowledge management is beneficial to organizations that have implemented knowledge management practices; and that such benefits are clearly identifiable and their relationships to knowledge practices clearly perceived.

Knowledge Practice	Pearson's chi-square	Results
Standard of practice	0.011	Increased flexibility in production and innovation
Recruitment	0.031	
Best practice transfer	0.037	
Competency modeling	0.037	
Benchmarking	0.015	Has led to new partnerships
Standard operating practices	0.001	Increase in new products or services
New product development	0.011	
Best practice transfer	0.013	
Benchmarking	0.025	
Competency modeling	0.032	
Strategic planning	0.001	Improved vertical knowledge-sharing
Recruitment	0.003	
Training	0.019	
Database	0.022	
Standard operating practices	0.043	
Benchmarking	0.044	
Recruitment	0.010	Improved corporate or organizational memory
Research	0.030	
Strategic planning	0.032	
New product development	0.005	Improved ability to obtain knowledge from other business enterprises, trade literature
Benchmarking	0.032	
Benchmarking	0.002	Improved knowledge sharing horizontally
Strategic planning	0.009	
Project reviews	0.013	
Best practice transfer	0.015	
Recruitment	0.035	
Recruitment	0.012	
Project reviews	0.041	Improved adaptation of products or services to client requirements
Standard operating practices	0.019	Improved worker efficiency
Recruitment	0.041	
New product development	0.041	
Best practice transfer	0.046	
New product development	0.041	
Standard operating practices	0.019	Improved involvement of workers in workplace activities
Recruitment	0.041	
Product development	0.041	
Best practice transfer	0.046	
Standard operating practices	0.019	Improved skills and knowledge of workers
Recruitment	0.041	
Product development	0.041	
Best practice transfer	0.046	

Table 3: Pearson's chi –square measure, between knowledge practices and results

4.7 EFFECTIVENESS OF KNOWLEDGE MANAGEMENT PRACTICES

Effectiveness of knowledge management is measured by a majority of the organizations (67%). A variety of methods are used to do this. The leading methods are audits (17%), performance measurement (17%), management review (10%), appraisals (10%), evaluation (7%) and customer satisfaction feedback (7%). This implies that organizations are to a large extent interested in measuring how effective knowledge management is.

4.8 CAUSES FOR ADOPTION OF KNOWLEDGE MANAGEMENT PRACTICES

The threat from competitors and the influence of the Board of Directors are the two leading factors that caused organizations to put into effect knowledge management practices. It is clear that internal and external factors work together to cause the adoption of knowledge management practices. The leading external factor is threat from competitors (84%) followed by the organizational focus on customers (72%).

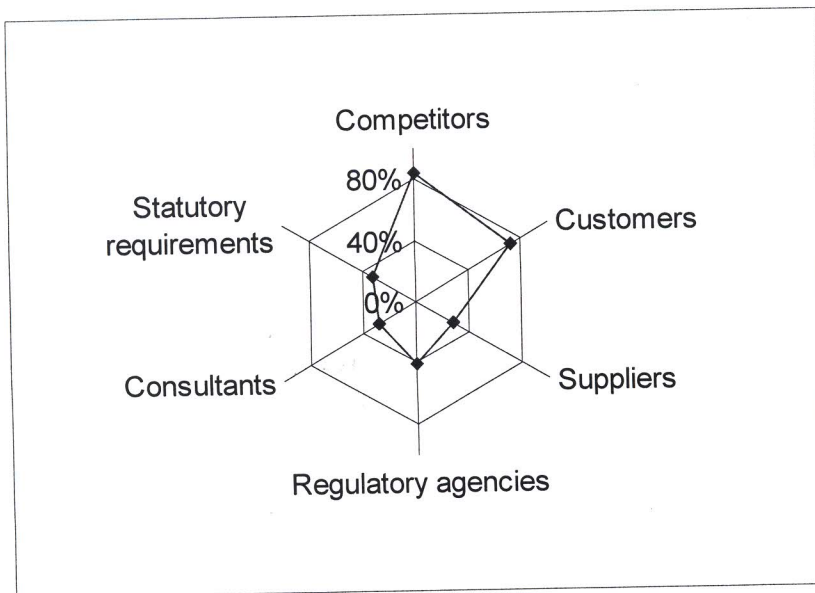


Figure 6: Who externally causes the adoption of knowledge management practices in organizations?

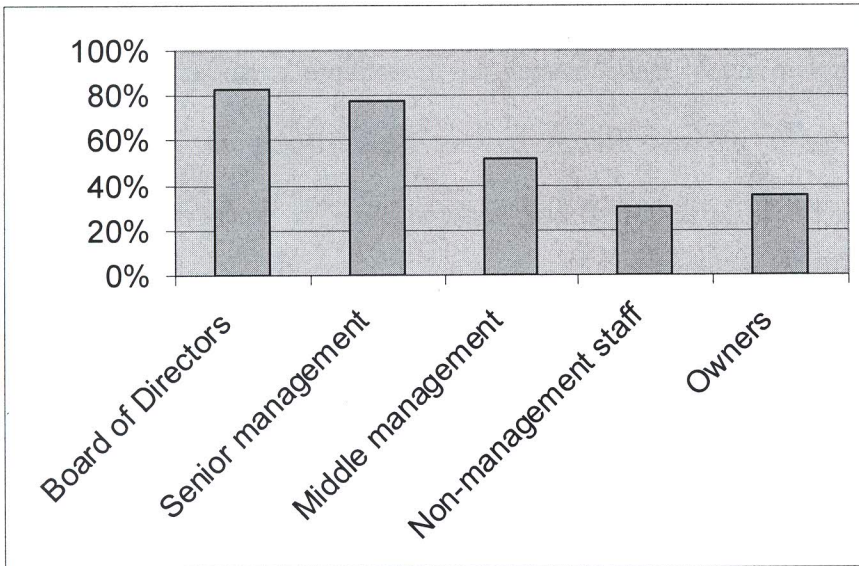


Figure 7: Who internally causes the adoption of knowledge management practices in organizations?

For the internal factors, the Board of Directors are the leading (83%) cause, cited by the respondents, for the adoption of knowledge management practices, followed by senior management at 78% and middle management at 52%. Analysis using Pearson's chi-square measure shows that where organizations were caused by threat from competitors to adopt knowledge management, the significantly related benefits derived are increased flexibility in production and innovation (0.011), improved ability to obtain knowledge from other business enterprises and trade literature(0.014), improved employee efficiency(0.019), improved involvement of workers in workplace activities (0.019) and improved skill and knowledge of workers (0.019) , improved vertical knowledge sharing(0.043).

Where the organization was caused by customers to adopt knowledge management, the significantly related benefits derived are improved vertical knowledge sharing(0.022); and improved adaptation of products or services to client requirements(0.004). Where the cause was suppliers, the significantly related benefit derived from knowledge management practices is increase in new product and services(0.032). These findings imply that organizations should base their rationale for implementing knowledge management on customer needs and competitor threats in order to derive most benefits.

4.9 ROLE MODELS IN KNOWLEDGE MANAGEMENT

A variety of role models have been used by the respondent organizations. The leading role model are competitors, cited by 85% of the respondents followed by regulatory agencies cited by 80%, and consultants, cited by 78% of the respondents. The other role models are customers (77%), statutory requirements (75%) and suppliers (57%). This means that competitors greatly influence each other as role models in the application of knowledge management.

4.10 RESOURCES ALLOCATED TO KNOWLEDGE MANAGEMENT

A majority, 92%, of the respondent organizations had a budget for knowledge management and 83% foresee a change in the resources allocated to knowledge management. Of the respondents that foresee a change in resources allocated to knowledge management, 62% expect an increase of at most 50% in the financial resources, and 19% expect an increase of more than 50%. On the other hand, of the respondents, 40% expect an increase of at most 50% in the non-financial resources, and 35% expect an increase of more than 50%. The expected increase in resources allocated to knowledge management implies that there is increasing recognition of the importance of knowledge management.

4.11 IMPLEMENTATION OF KNOWLEDGE MANAGEMENT PRACTICES

The implementation of knowledge management practices received full backing mainly from consultants (88%), Board of Directors (86%), senior management (86%), middle management (81%), owners and shareholders (81%) and customers (67%). The regulatory agencies gave full backing 55%, qualified backing 36% or were neutral 9%. A majority of suppliers either gave qualified backing (42%) or were neutral (32%). A majority of the competitors, 62%, were neutral. There was qualified opposition from non-management staff, cited by 14% of the respondents; suppliers, cited by 5% of the respondents; and senior management, cited by 4% of the respondents. Total opposition came only from 30% of the competitors. This means that in most cases there is support for implementation of knowledge however there is some opposition, mainly from some competitors and a minority of staff.

		Source	Full Backing 1	Qualified Backing 2	Neutral 3	Qualified Opposition 4	Total Opposition 5
A	External	Competitors		8%	62%		30%
		Customers	67%	22%	11%		
		Suppliers	21%	42%	32%	5%	
		Regulatory agency	55%	36%	9%		
		Consultants	88%		12%		
B	Internal	Board of Directors	86%	14%			
		Senior management	86%	10%		4%	
		Middle management	81%	14%	5%		
		Non-management staff	43%	29%	14%	14%	
		Owners and shareholders	81%	6%	13%		

Table 4: Response to implementation of knowledge management practices

4.12 FINANCIAL MANAGEMENT BENEFITS OF KNOWLEDGE MANAGEMENT

Of the respondents, 74%, strongly cited increased productivity, re-use of internal knowledge and acceleration of processes as financial management benefits derived from knowledge management practices. Reduced errors were strongly cited by 73% of the respondents while reduction of redundant data was strongly cited by 65% of the respondents. Time savings in routine work and increased process transparency were both strongly cited by 61% of the respondents as financial management benefits deriving from knowledge management practices. 52% of the respondents strongly cited transaction costs savings as a financial management benefit derived from knowledge management practices. These findings imply that there are clearly perceived financial management benefits in using knowledge management practices.

4.13 VALUE OF KNOWLEDGE ASSETS

Only 35% of the organizations sampled measure the value of knowledge assets and out of these only 50% cited a method for the measurement of the value of assets. The acquisition method was the most cited at 57%. Repossession cost, market value, comparable organizations, market capitalization and book value, and discounted cash flow methods were each cited by 29% of the respondents. Clearly there is significant weakness in measurement of the value of knowledge assets. This implies that there is likely to be less than optimum utilization of the value of knowledge assets.

4.14 SUMMARY OF FINDINGS

The response rate was 75% and of the organizations surveyed, a majority has between 51 and 250 employees. A majority have a turnover exceeding Kenya shillings 500 million. All the knowledge management processes are in use but at different levels of utilization. Knowledge acquisition, replication and sharing are the most commonly used; while creation and measurement are the least used. Of the factors that influence the adoption of knowledge management processes, level of number of employees and level of turnover are the most significant. The leading reason for use of knowledge management is to promote sharing and transfer of knowledge among employees. Pearson's chi-square test shows that as turnover increases, there is an increased likelihood of using knowledge management practices to tap into the knowledge employees have and to portray the organization as up-to-date.

The respondents pointed out that the leading area for improvement of knowledge practices is in research, followed by training, benchmarking, operations and best practice transfer. Where knowledge management is in use, the key knowledge management practices to improve are on-the-job training and competency modeling. Improvement in on-the-job training is required where research, recruitment or intellectual property knowledge management practices are in implemented. Improvement in competency modeling is required where recruitment, benchmarking, or databases knowledge management practices are in use.

The findings show that knowledge management is beneficial to organizations that have implemented knowledge management practices; and that such benefits are clearly identifiable and their relationships to knowledge practices clearly perceived. The benefits include increased flexibility in production and innovation; new partnerships; increase in new products or services; improved vertical knowledge-sharing; improved corporate or organizational memory; improved ability to obtain knowledge from other business enterprises and trade literature; improved knowledge sharing horizontally; improved adaptation of products or services to client requirements; improved worker efficiency; improved involvement of workers in workplace activities; and improved skills and knowledge of workers. Effectiveness of knowledge management is measured by a majority of the organizations and the leading methods used to evaluate effectiveness are audits and performance reviews.

The threat from competitors and the influence of the Board of Directors are the two leading factors that caused organizations to put into effect knowledge management practices. It is clear that internal and external factors work together to cause the adoption of knowledge management practices. Findings, based on Person's chi-square results, imply that organizations should base their rationale for implementing knowledge management on customer needs and competitor threats in order to derive most benefits.

A variety of role models have been used by the respondent organizations in the implementation of knowledge management practices. The leading role model are competitors, this means that competitors greatly influence each other as role models in the application of knowledge management. A majority, 92%, of the respondent organizations had a budget for knowledge management and 83% foresee a change in the resources allocated to knowledge management. The expected increase in resources allocated to knowledge management implies that there is increasing recognition of the importance of knowledge management.

The implementation of knowledge management practices received full backing mainly from consultants (88%), Board of Directors (86%), senior management (86%), middle management (81%), owners and shareholders (81%) and customers (67%). Overall, the findings show that in most cases there is support for implementation of knowledge however there is some opposition, mainly from some competitors and a minority of staff.

Of the respondents, 74%, strongly cited increased productivity, re-use of internal knowledge and acceleration of processes as financial management benefits derived from knowledge management practices. Reduced errors were strongly cited by 73% of the respondents. Only 35% of the organizations sampled measure the value of knowledge assets and out of these only 50% cited a method for the measurement of the value of assets. The acquisition method was the most cited at 57%.

CHAPTER 5 – CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

In general, a survey of the management of knowledge assets in ISO 9000 series certified organizations in Kenya has been achieved. Based on the research objectives and research questions, the researcher draws from the study the conclusions set out below:

The research findings demonstrate that a large proportion of ISO 9000 series certified organizations generate knowledge. The research findings demonstrate that the methods used to acquire knowledge in ISO 9000 series certified organizations in Kenya are predominantly training and recruitment and to a significant extent, benchmarking. The level of turnover of the organization has a large bearing on extent of adoption of knowledge management practices.

The research findings demonstrate that ISO 9000 series certified organizations in Kenya have a clear perception of the financial benefits derived from using knowledge assets. These benefits are to a large extent in increased productivity, acceleration of processes, re-use of internal knowledge and reduced errors. In addition, it is clear that in general, organizations cite more benefits from knowledge management, where the cause for the adoption of knowledge management was customer needs or the threat from competitors.

The research findings show that knowledge generation in ISO 9000 series certified organizations in Kenya can be improved by focusing on research. Knowledge acquisition can be improved by better utilization of the training process and of benchmarking. Knowledge generation can be improved using routine operations. Replication of knowledge can be improved using on-the-job training and knowledge assets measurement using competency modeling. In general, improving on-the-job training and competency modeling, based on statistical linkage between knowledge practices implemented and those that need improvement, will yield multiple benefits to organizations and should be given priority. This survey has fulfilled all its objectives.

5.2 RECOMMENDATIONS

Based on summary of finding and suspicion, the researcher recommends that those ISO 9000 series certified organizations that are not doing so should commence to generate knowledge; this can be done by improving routine operations and by new product development. The researcher also recommends, based on research findings, that ISO 9000 series certified organizations prioritize the inclusion of intellectual property licensing in the processes used to acquire knowledge.

The researcher recommends that to maximize benefits, the implementation of knowledge management should address customer needs and the threat from competitors. The researcher further recommends, based on the research findings, that ISO 9000 series certified organizations should develop the measurement of the effectiveness of knowledge processes and strengthen the quantification of the value of knowledge assets.

The researcher recommends that on-the-job training and competency modeling be given priority in the improvement of knowledge processes. The researcher further recommends, based on the research findings, that all organizations measure the effectiveness of knowledge management practices and use the results to continually identify areas for further improvement.

5.3 SUGGESTIONS FOR FURTHER RESEARCH

The researcher suggests, as an outcome of this study, the following areas for further research;

1. An exploration of the reasons that limit research and innovation in ISO 9000 series certified organizations in Kenya.
2. An investigation of the reasons why intellectual property licensing is not used for knowledge acquisition among ISO 9000 series certified organizations in Kenya.
3. A survey to determine the reasons for staff resistance to the implementation of knowledge management processes.
4. An examination of the reasons why there is weak valuation of knowledge assets in ISO 9000 series certified organizations in Kenya.

REFERENCES

The American Association for Public Opinion Research.(2000). *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys*. Lenexa, Kansas: The American Association for Public Opinion Research.

Appleby, Robert C.(1994). *Modern business administration*. England. Pearson Education Limited.

Bateson, Gregory (1988). *Mind and nature: a necessary unity*. Bantam.

Cochran, W.G. (1977). *Sampling Techniques* (3rd ed.). New York. John Wiley & Sons.

Coopey, J. (1995). The learning organization, power, politics, and ideology. *Management Learning*, 26, 192-213.

Davidson, Mike. (1996). *The transformation of management*. Butterworth-Heinemann.

Grant, Robert M. (2002). *Contemporary strategy analysis: concepts, techniques, applications*. United Kingdom: Blackwell Publishers Ltd..

Holton, E.H. and Burnett, M.B. (1997). Qualitative research methods. In R.A. Swanson, & E.F. Holton (Eds.), *Human resource development research handbook: Linking research and practice*. San Francisco. Berrett-Kohler Publishers.

Imparato, Nicholas and Harari, Oren. (1994). *Jumping the curve: innovation and strategic choice in an age of transition*. San Francisco. Jossey-Bass Inc.

Jawara, Fatoumata and Kwa, Aileen. (2003). *Behind the scenes at the WTO: the real world of international trade negotiations*. Zed Books

Marr, B., Schiuma, G. (2001). *Measuring and Managing Intellectual Capital and Knowledge assets in New Economy Organizations*, in Bourne, M. (ed.) *Handbook of Performance Management*, Gee, London.

McKenna, Eugene. (2000). *Business psychology and organizational behaviour: a student handbook*. United Kingdom: Psychology Press Ltd..

Mugenda, Olive M. and Mugenda, Abel G. (2003). *Research Methods Quantitative and Qualitative Approaches*. Nairobi: ACTS Press.

Nonaka, I. & Takeuchi, H. (1995). *The knowledge creating organization: how Japanese organizations create the dynasties of innovation*. Oxford: Oxford University Press.

Robertson, James. (2004). *Developing a knowledge management strategy*. Sydney. Step Two Designs Pty Ltd..

Schutz, Alfred. (1967) *The phenomenology of the social world*.

Evanston, IL: Northwestern University Press.

Saunders, Mark, Phillip Lewis and Adrian Thornhill. (2003) *Research Method for Business students, Third Edition*, Prentice Hall.

Senge, Peter (1990). *The fifth discipline: The art & practice of the learning organization*.
Doubleday- Currency

McNeil, P. (1990) *Research Methods*, London: Routledge

Raimond, P. (1993) *Management Projects: Design, Research and Presentation*,
London: Chapman and Hall.

JOURNALS

Bhatt, G., Knowledge management in organizations: examining the interaction between technologies, techniques, and people. *Journal of Knowledge Management*, vol. 5 no.1 2001

Chaston, I., Badger, B., Mangles, T., & Sadler-smith, E. (2001). Organisational learning style, competencies and learning systems in small, UK manufacturing firms.

International Journal of Operations & Production Management, 21(11), 1417-1433.

Duffy, Jan. The tools and technologies needed for knowledge management.

Information Management Journal, vol.35 Issue 1 2001, 64-67.

Garvin, D.A. (1993). Building a learning organization.

Harvard Business Review, July-August, 78-91

Kotter, J.P. (1990). What do leaders really do? *Harvard Business Review*, 68, 103-111.

Nonaka, I. (1991) The knowledge creating organization

Harvard Business Review, 69, 96-104.

Sloman, M. (1994). Coming in from the cold: A new role for trainers.

Personnel Management, January.

PUBLISHED ON THE INTERNET

Abeysekera, Indra. (2001). A Framework To Audit Intellectual Capital. *Journal of Knowledge Management Practice*, August.

<http://www.tlinc.com/articl25.htm> Accessed on 6th June 2005.

Daum, Juergen. (2001). *The new New Economy Analyst Report*

http://www.juergendaum.com/news/07_06_2001.htm Accessed on 13th September 2005.

Gene Bellinger. (2004). *Knowledge management – emerging perspectives*

<http://www.systems-thinking.org/kmgmt/kmgmt.htm> Accessed on 18th March 2005.

Gomez, Fatima Guadamillas & Manzanares, Mario Donate. (2004). *Knowledge management strategies, innovation and firm performance-an empirical study.*

http://www.ofenhandwerk.com/oklc/pdf_files/c-1_guadamillas.pdf Accessed on 9th April 2005

International Organization for Standardization, (2000). *Implementing your ISO9000:2000 quality management system.*

http://www.iso.org/iso/en/iso9000-14000/iso9000/selection_use/implementing.html

Accessed on 23rd April 2005

International Organization for Standardization, (2000). *The future evolution of ISO9000*.
http://www.iso.org/iso/en/iso9000-14000/iso9000/selection_use/thefuture.html

Accessed on 23rd April 2005

International Organization for Standardization, (2000). *Quality Management Principles*.
<http://www.iso.org/iso/en/iso9000-14000/iso9000/qmp.html> Accessed on 23rd April 2005

Kenya Bureau of Standards, (2005). *Certification services*.

<http://www.kebs.org/certification> Accessed 8th April 2005

Malhotra, Yogesh. (2001). *Knowledge Assets in the Global Economy: Assessment of National Intellectual Capital* <http://www.kmnetwork.com/intellectualcapital.htm>

Accessed on 13th September 2005

National electronic Library for Health, United Kingdom. (2003). *Knowledge management glossary*. http://www.nelh.nhs.uk/knowledge_management/glossary/glossary.asp

Accessed on 1st April 2005.

North, Klaus, Reinhardt, Rudiger & Schmidt, Alexandra. (2004). *The benefits of knowledge management: some empirical evidence*.

http://ofenhandwerk.com/oklc/pdf_files/A-8_north.pdf Accessed 9th April 2005

OECD (2002). *OECD Knowledge management project report – Danish pilot survey*

<http://oecd.org/dataoecd/23/56/2756535.pdf> Accessed 15th April 2005.

Okunoye, Adekunle and Karsten, Helena. (2002). *ITI as enabler of knowledge management: empirical perspective from research organizations in sub-Saharan Africa*. Institute for Electrical and Electronics Engineers.

Shaw, Nancy C., Meixell, Mary J., Tuggle, Francis, D. (2002). *A case study of integrating knowledge management into the supply chain management process*. Institute for Electrical and Electronics Engineers.

APPENDICES

Appendix	1	Questionnaire transmittal letter
Appendix	2	Questionnaire
Appendix	3	Work plan
Appendix	4	Budget
Appendix	5	Target Population

APPENDIX I

QUESTIONNAIRE TRANSMITTAL LETTER

Date

The Manager, Quality Assurance,

XXX Kenya Ltd..

Attention:

Dear Sir/Madam,

KNOWLEDGE MANAGEMENT STUDY

This is to request you to peruse the attached questionnaire on knowledge management.

Knowledge management refers to the processes, technologies and organizational structures that harness and promote the acquisition or generation and exploitation of know-how and experience for the benefit of the organization. I am carrying out a study in this area.

Let me assure you that your responses will be treated with strict confidentiality and are being sought only for academic purposes, furthermore the nature of the responses required will not compromise your organization or your position. Kindly fill out the questionnaire and send it back at the earliest opportunity. If need be I can arrange, at your request, to see you to collect your responses. Hopefully this process will be complete in the next two weeks.

Kindly acknowledge receipt.

Regards,

Munaweza Muleji,

P.O.Box 79747, 00200, Nairobi; Tel:020-4440440/4/9; Cel:0733-250483,

Email:munaweza.muleji@actionaid.org

APPENDIX II

QUESTIONNAIRE ON FACTORS AFFECTING MANAGEMENT OF KNOWLEDGE ASSETS IN ISO 9000 CERTIFIED ORGANIZATIONS IN KENYA

Q.1 Background variables

a. How many are employed in your organization?

Less than 50 _____

Between 51 and 250 _____

More than 250 _____

b. What is the annual turnover of your organization?

Less KShs 250 million _____

Between KShs. 250 and 500 million _____

Over KShs. 500 million _____

c. What is the main trading activity of your organization?

d. Where is your organization's head office ? _____

e. In which cities and towns in Kenya does your organization have branches?

f. What is the organization title of the person who filling this questionnaire? _____

Q.2 Does the practice of knowledge management exist in your organization?
_____(Yes) _____(No)

Q 3. If yes, which knowledge management practices do you use within your organization? Place the mark X as appropriate.

PROCESS	PRACTICES	YES	NO
Knowledge creation	Research		
Knowledge acquisition	Training		
	Recruitment		
	Intellectual property licensing		
	Benchmarking		
Knowledge generation	New product development		
	Operations		
Knowledge sharing	Strategic planning		
	Communities of practice		
Knowledge replication	Best practice transfer		
	On-the-job training		
Knowledge storage and organization	Databases		
	Standard operating practices		
Knowledge measurement	Intellectual capital accounting		
	Competency modeling		
Knowledge identification	Project reviews;		
	Competency modeling		

Q 4. Why does your organization use the Knowledge Management practices you indicated above? Place the mark X as appropriate.

	REASON	YES	NO
1	To profile the enterprise as an up-to-date organization		
2	To identify unspoken (tacit) knowledge among employees		
3	To promote sharing and transfer of knowledge among employees		
4	To promote sharing and transfer of knowledge with suppliers		
5	To promote sharing and transfer of knowledge with customers		
6	To promote sharing and transfer of knowledge with the industry		
7	Other reason (please specify: _____)		
8	Other reason (please specify: _____)		

Q 5. Which knowledge management practices do you think can be improved within your organization? Place the mark X as appropriate.

PROCESS	PRACTICES	YES	NO
Knowledge creation	Research		
Knowledge acquisition	Training		
	Recruitment		
	Intellectual property licensing		
	Benchmarking		
Knowledge generation	New product development		
	Operations		
Knowledge sharing	Strategic planning		
	Communities of practice		
Knowledge replication	Best practice transfer		
	On-the-job training		
Knowledge storage and organization	Databases		
	Standard operating practices		
Knowledge measurement	Intellectual capital accounting		
	Competency modeling		
Knowledge identification	Project reviews;		
	Competency modeling		

Q 6. Has the practice of knowledge management yielded positive results?
 ____ (Yes) ____ (No)

Q 7. Please indicate the achieved results of knowledge management practices in use in your organization? Place the mark X as appropriate.

	RESULTS	YES	NO
1	Increased flexibility in production and innovation		
2	Has led to new partnerships		
3	Increase in new products or services		
4	Improved vertical knowledge-sharing		
5	Improved corporate or organizational memory		
6	Improved ability to obtain knowledge from other business enterprises, trade literature		
7	Improved knowledge sharing horizontally		
8	Improved adaptation of products or services to client requirements		
9	Improved worker efficiency		
10	Improved client or customer relations		
11	Improved involvement of workers in workplace activities		
12	Improved skills and knowledge of workers		

Q 8. Does your organization measure the effectiveness of the knowledge management practices? ____ (Yes) ____ (No)

Q 9. If your answer to question 10 above is yes, how do you measure the effectiveness of knowledge management practices.

Q 10. What caused your organization to put into effect knowledge management practices currently in use? Place the mark X as appropriate.

		Source	YES	NO
A	External	Competitors		
		Customers		
		Suppliers		
		Regulatory agency		
		Consultant		
		Statutory requirements		
		Other(specify: _____)		
B	Internal	Board of Directors		
		Senior management		
		Middle management		
		Non- management staff		
		Owners and shareholders		
		Other(specify: _____)		

Q 11. Has your organization used role models in knowledge management?
 ____ (Yes) ____ (No)

Q 12. Which role model(s) has your organization used in knowledge management? Place the mark X as appropriate.

	Source	Specify	YES	NO
1	Competitors			
2	Customers			
3	Suppliers			
4	Regulatory agency			
5	Consultant			
6	Statutory requirements			
7	Other:			

Q 16. How was the implementation the knowledge management practices received in your organization? Place the mark X as appropriate.

		Source	Full Backing 1	Qualified Backing 2	Neutral 3	Qualified Opposition 4	Total Opposition 5
A	External	Competitors					
		Customers					
		Suppliers					
		Regulatory agency					
		Consultant					
		Statutory requirements					
		Other specify:					
B	Internal	Board of Directors					
		Senior management					
		Middle management					
		Non-management staff					
		Owners and shareholders					
		Other specify:					

Q 17. Has knowledge management generated the following results in the financial management of your organization?

Strongly Agree Not Sure Agree Disagree Strongly Disagree

Acceleration of processes -----

Reduction of redundant data -----

Re-use of internal knowledge -----

Reduced transaction costs -----

Increased process transparency -----

Increased productivity -----

Reduced errors -----

Time savings in routine work -----

Q 18. Does your organization measure the value of its knowledge assets?
 ____ (Yes) ____ (No)

Q 19. If your answer to question 20 is yes, what method is used?

- | | | |
|--------------------------------------|-------------|------------|
| Acquisition cost | _____ (Yes) | _____ (No) |
| Repossession cost | _____ (Yes) | _____ (No) |
| Market value | _____ (Yes) | _____ (No) |
| Comparable organizations | _____ (Yes) | _____ (No) |
| Market capitalization and book value | _____ (Yes) | _____ (No) |
| Discounted cash flow method | _____ (Yes) | _____ (No) |

Thank you very much for sparing your time to fill this questionnaire.

APPENDIX III

WORK PLAN

ACTIVITY	Mth 1	Mth 2	Mth 3	Mth 4	Mth 5	Mth 6	Mth 7	Mth 8	Mth 9	Mth 10
Letters to questionnaire Target	✓									
Follow-up on letters to Interviewees		✓								
Administer Questionnaires			✓	✓	✓	✓	✓	✓		
Collating Responses									✓	
Data Analysis									✓	
Findings & Recommendations										✓
Finalize report										✓
Sign-off by Supervisor										✓
Submission										✓

Note: Month 1 was April 2006 and month 10 was January 2007.

APPENDIX IV

BUDGET

	KShs.
Proposal development, typing and spiral binding (including stationery and travel costs, mainly to the libraries and to defend the proposal)	4,000
Questionnaire Administration costs @ KShs250 per target for 36 respondents (including stationery, postage, telephone and travel costs)	9,000
Data Analysis	15,000
Typing & binding	<u>8,100</u>
	36,100
Contingencies	<u>3,600</u>
Total budget	<u>39,700</u>

APPENDIX V TARGET POPULATION

ISO 9000 SERIES CERTIFIED ORGANIZATIONS IN KENYA

- 1 AFRICA MARINE & GENERAL ENGINEERING (AMGECO) –Mombasa
- 2 AGA KHAN HOSPITAL NAIROBI
- 3 AGROCHEMICAL AND FOOD CO. Ltd.
- 4 ALLOY STEEL CASTINGS Ltd.
- 5 ALLPACK INDUSTRIES Ltd.
- 6 ASHUT ENGINEERS Ltd.
- 7 ASSOCIATED BATTERY MANUFACTURERS
- 8 ASP COMPANY –Nairobi
- 9 ATHIRIVER MINING
- 10 ATLAS COPCO (K) Ltd.
- 11 AZICON ENGINEERING Ltd.
- 12 BAGS & BALERS MANUFACTURERS Ltd.
- 13 BAMBURI SPECIAL PRODUCTS
- 14 BIDCO OIL REFINERIES LTD.
- 15 BLOWPLAST LIMITED
- 16 BOX CLEVER (K) Ltd.
- 17 CALTEX OIL (K) Ltd. – Distribution
- 18 CALTEX OIL (K) Ltd. – Lube Plant
- 19 CARGIL KENYA Ltd.
- 20 CARNAUD METAL BOX Ltd.
- 21 CARTON MANUFACTURERS Ltd.
- 22 CENTRAL GLASS INDUSTRIES Ltd.-Nairobi
- 23 CEMPACK Ltd.
- 24 CITIBANK N.A Kenya
- 25 COASTAL BOTTLERS Ltd.-Mombasa
- 26 COATES BROTHERS E A Ltd.
- 27 COOK N LITE
- 28 CROWN FOODS
- 29 DE LA RUE CURRENCY & SECURITY PRINT
- 30 DEL MONTE
- 31 DHL INTERNATIONAL (K) Ltd.
- 32 DODHIA PACKAGING Ltd.
- 33 E.A FOUNDRY Ltd.
- 34 E.A ELEVATORS CO Ltd.
- 35 E.A PACKAGING IND.(NAIROBI)
- 36 E.A SPECTRA Ltd.
- 37 EPCO BUILDERS
- 38 FINA BANK
- 39 FIRESTONE E A Ltd.
- 40 FRIENDSHIP CONTAINER MANUFACTURING Ltd.
- 41 GALSHEET (K) Ltd.

- 42 GENERAL MOTORS Ltd.-Nairobi
- 43 GENERAL PLASTICS Ltd.
- 44 GENERAL PRINTERS Ltd.
- 45 GLAXOSMITHKLINE -Nairobi
- 46 GOLDCROWN BEVERAGES
- 47 HEIDELBERG EAST AFRICA
- 48 HENKEL KENYA Ltd.
- 49 HIGHLAND CANNERS Ltd.
- 50 HOMEGROWN Kenya
- 51 IBERAFRICA Ltd.
- 52 INSTITUTE OF ADVANCES TECHNOLOGY
- 53 INTERTEK SERVICES Ltd.-Mombasa
- 54 JOHNSON DIVERSEY
- 55 KALUWORKS LTD./MOMBASA
- 56 KENOL KOBIL
- 57 KENYA BREWERIES Ltd.-Nairobi
- 58 KENYA LITHO Ltd.
- 59 KENYA ASSOCIATION OF MANUFACTURERS
- 60 KENWESTFAL Ltd.
- 61 KENYA BIXA Ltd.
- 62 KENYA CUTTINGS Ltd.
- 63 KENYA ELECTRICITY GENERATING COMPANY (KENGEN)
- 64 KENYA MALTINGS Ltd.-Molo
- 65 KENYA MALTINGS Ltd.-Nairobi
- 66 KENYA PETROLEUM REFINERIES Ltd.
- 67 KENYA POSTEL DIRECTORIES
- 68 KENYA SHELL Ltd.
- 69 KENYA SHELL DISTRIBUTION
- 70 MABATI ROLLING MILLS
- 71 MAGADI SODA Ltd.
- 72 METAL CROWNS Ltd.
- 73 MOBIL OIL (K) Ltd.
- 74 MOBIL OIL (K) Ltd. – Lube Plant
- 75 MULTIPOINT INTERNATIONAL Ltd.
- 76 NATION CARRIERS Ltd.
- 77 NATION MEDIA GROUP
- 78 NATION NEWSPAPERS DIVISION
- 79 PAN AFRICAN PAPER MILLS
- 80 POWER TECHNICS
- 81 PRESTIGE PACKAGING Ltd.
- 82 PROCTOR AND ALLAN
- 83 ROY TRANSMOTORS Ltd.
- 84 ROSEWOOD OFFICE SYSTEMS
- 85 SADOLIN PAINTS
- 86 SAMAKI INDUSTRIES Ltd.
- 87 SDV TRANSAMI Ltd.

- 88 SILPACK INDUSTRIES Ltd.
- 89 SLUMBERLAND KENYA Ltd.
- 90 SPINNERS AND SPINNERS (ISO 9000 SERIES)
- 91 SECUREX
- 92 SGS LABORATORY-Mombasa
- 93 SOUTHERN ENGINEERING Co. Ltd.
- 94 STANDARD CHARTERED BANK
- 95 STRATHMORE UNIVERSITY
- 96 STEADMAN RESEARCH SERVICES
- 97 SUMARIA INDUSTRIES LTD.
- 98 TETRA PAK (K) Ltd.
- 99 THREE MICE INTERACTIVE MEDIA
- 100 TIBBET & BRITTEN
- 101 TOTAL KENYA Ltd.
- 102 TREADSETTERS TYRE Ltd.
- 103 TRIAD ARCHITECTS
- 104 TWIGA CHEMICALS
- 105 UNGA TECHNICAL DEPT
- 106 UNILEVER (K) Ltd.
- 107 UNION LOGISTICS
- 108 UNIQUE SUN APPARELS EPZ Ltd.
- 109 VIPUL SHAH AND CO.
- 110 WARTSILLA E.A LTD. (ISO 9000 SERIES)
- 111 UAP INSURANCE CO LTD.
- 112 VAN LEER E A Ltd. – Plastic Division
- 113 VAN LEER E A Ltd. – Steel Division
- 114 VESTERGAARD
- 115 ZAKHEM CONSTRUCTION (K) Ltd.-Nairobi
- 116 ZAKHEM INTERNATIONAL CONSTRUCTION Co. Ltd.

Source: Quality Standards Accreditation Committee (QSAC) unit, Kenya Bureau of Standards, Nairobi, April 2005.