Implementing knowledge management in academic libraries: a comparative case study of the Kamuzu College of Nursing and Bunda College of Agriculture libraries

By

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DECLARATION

This work 'Implementing knowledge management in academic libraries: a comparative case study of the Kamuzu College of Nursing and Bunda College of Agriculture libraries', is my own work. This work has not been submitted previously in part, or in whole for the award of any degree. Each significant contribution and quotation has been indicated, acknowledged and referenced.

Signature: Signed by candidate Date: 25 January 2011

ABSTRACT

This dissertation focuses on an investigation that was conducted to find out the state of knowledge management in the Kamuzu College of Nursing and Bunda College of Agriculture libraries, constituent college libraries of the University of Malawi. Drawing from the literature on knowledge management, the study proposed and implemented two models for the maturity assessment and implementation of knowledge management respectively. The study used the models successfully to measure the levels of maturity of knowledge management and identify the knowledge needs and knowledge assets of the libraries.

The results of the study revealed that both libraries are at the same level of knowledge management maturity i.e. knowledge management is still in its infancy as they did not have clearly established strategies to make use of knowledge. Furthermore, there were no significant differences between the two libraries in the various aspects of knowledge management investigated. The study therefore recommended a road map for implementing knowledge management in the libraries.

Knowledge management is recognised by many organisations as of strategic importance to improving an organisation's performance and its competitive advantage. Knowledge management thus has been largely associated with profit making organisations. However, knowledge management is also applicable to non-profit making organisations such as academic libraries. The environment in which academic libraries operate continuously changes and it is therefore imperative for the libraries to use knowledge management as a tool to adapt and remain relevant.

The study therefore, contributes to the field of knowledge management application in academic libraries. Investigations have generally been largely skewed towards profit making

organisations, but this study indicates a practical way of implementing knowledge management in academic libraries.

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CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Introduction and background

This study explored the 'knowledge health', i.e. the state and maturity of knowledge interaction and management, of the Kamuzu College of Nursing (KCN) and Bunda College of Agriculture[1] libraries, two of the five libraries at the University of Malawi. The libraries' mandate is to provide information that is required for learning, teaching and research. The libraries are regarded as the hub of learning in their respective colleges and therefore have a major task to meet the information demands, expectations and needs of users. The study thus set out to determine the capacity of the libraries to use individual tacit, explicit and collective organisational knowledge to improve their performance in rendering services.

Knowledge management (KM) has gained ground in many organisations because of the realisation that knowledge is an important resource, which if used strategically can improve the performance of organisations. In the knowledge economy, it is important that organisations should improve their performance to gain competitive advantage and to remain relevant in the ever-changing environment (cf. Wiig, 1993: 13; Wiig 1997: 1; Prusak, 2001: 1003). Wiig (1993) further emphasises that by practising KM individuals and organisations are better able to act intelligently. They are able to do more things in a better way and at the same time use fewer resources. Wiig further argues that the proper use of knowledge enables individuals to make quicker and better decisions that save time and money.

The growing recognition of the strategic importance that knowledge management holds for organisations has further resulted in KM research also growing and much focus being placed

[1] Here after referred to as Bunda College

on what Handzic (2004) calls prescriptive or descriptive approaches to KM. Despite this, some authors still argue that KM is not a new concept. For instance April and Izad (2004) contend that organisations have managed knowledge since the first organisation was established. Tiwana (2002) goes a step further and argues that successful managers and businesses have always known that the knowledge that employees possess is a key asset as opposed to buildings, products and other tangible assets. It is important however to note that KM goes beyond mere recognition that employees have an intangible asset and requires conscious management of the asset by considering its strategic importance. Successful KM is thus dependent on all individuals in an organisation making a concerted effort to deploy personal tacit, explicit and collective institutional knowledge effectively.

Wiig (1997:2) traces the initial efforts to manage knowledge to the 1980s. Prusak (2001: 1002), in turn, argues that KM comprises of both new and old ideas from sociology, philosophy and psychology. The sociological aspect of KM is concerned with how people share knowledge and under what circumstances. The philosophical and psychological aspects cater for the human and structural complexities in organisations. For example, KM underscores the need to define knowledge and its related concepts, something philosophers have been doing for centuries. From psychology, KM draws the concepts of learning, decision making and motivation. Furthermore, information management, quality management and human capital management have influenced KM. (Prusak, 2001:1005)

KM is now widely accepted and used by numerous organisations including profit making, governments, non-governmental organisations and other non-profit making organisations. In profit making organisations KM is used to enable the organisations to gain a competitive edge over other organisations in similar business. Organisations that manage their knowledge effectively have a distinct advantage and are in a better position to produce high quality products that satisfy their customers. KM thus, helps them to realise good profits from their

business. For governments, NGOs and other non-profit making organisations, KM enables them to deliver their services more effectively.

Academic libraries fall into the non-profit making organisations category. Although they are not expected to make financial profit for their parent institutions, they are expected to be accountable for the investment that is made by the institution or donors. It is only by acting intelligently that they would be able to show any returns on investment. Furthermore, the changing roles of librarians, which require them not to abandon the old but also to embrace new roles is a challenge. In addition, changing user behaviour is a concern for libraries for if they do not adapt to evolving users' needs their services would become redundant. Wiig (1993) asserts that knowledge management is a necessary tool for organisations in a volatile environment. The need to manage change should thus be recognised alongside the management of knowledge.

It is unfortunate to note that the literature on the application of KM in academic libraries is very superficial and most of it focuses on perceptions of knowledge management by librarians (cf. White, 2004; Jain, 2007). It was further noted that special libraries, because of their positioning, are in the lead as far as implementing knowledge management is concerned (Townley, 2001). The implication of such a trend is that KM is being implemented more in the business world than in the academic world. Surely, academic libraries have an equal need for KM as they are operating in an ever-changing environment. As Wiig (1993) suggests, academic libraries should make available the best knowledge to their employees to give them insights in facing competition and change. Academic libraries, in addition to having to contend with a rapidly changing environment and the need to constantly improve on service delivery, also have to take into account the fact that they and the many other information providers that exist are in competition with one another. Users are at liberty to choose where

to source information and libraries cannot take it for granted that users will always be loyal to them.

1.2 Problem statement

The University of Malawi is regarded as the hub of learning and research in Malawi. It is expected to provide high quality facilities and services, such as the library, for use by students and staff. Developing efficient and effective library services in the digital era is a challenge for the University of Malawi libraries because the needs of students as well as staff are greatly influenced by the presence of digital content and Information Communication Technologies (ICTs). The situation is further aggravated by budget cuts that put pressure on the libraries to keep up with changes and maintain high standards even though the resources to do so are limited. The efficiency and effectiveness of the libraries therefore lies in turning them into learning organisations where knowledge within and without the libraries is optimally utilised. This requires knowledgeable, competent and innovative staff to manage information and knowledge that the libraries generate. It requires the libraries to optimise the creation, collection, storage and use of information and knowledge that would enable them to act intelligently.

1.3 Research objectives

The University of Malawi libraries have a network of librarians who share information by using e-mails. Such sharing of information may be regarded as a first step in ensuring that the knowledge that individuals have is made available to others. However sharing of information is only one of the objectives of KM. Furthermore, relying solely on e-mail is not sufficient because it can inhibit some individuals from sharing knowledge and soliciting ideas from their peers.

It can be noted that it is in the interest of the University of Malawi libraries to develop a culture of sharing information among their staff to enable the libraries to achieve their goals and serve their clients better. The libraries have made a concerted effort to send a number of their staff members for further training to enhance their skills and knowledge and hence their contribution towards the advancement of the libraries' objectives. Commendable initiatives one could say, but not sufficient to leverage the existing knowledge.

What is required for these libraries to leverage the knowledge of their employees is a clearly defined strategy to enhance the creation, sharing and flow of knowledge. An assessment of the knowledge and knowledge management status within two of the libraries was therefore thought to be a good basis for starting the implementation of knowledge management in the libraries. The assessment was intended to help to identify the current practices relating to creating and sharing information and knowledge, the deficiencies in the present practices, and the gaps that exist between the present situation and the desired situation.

The study therefore specifically sought to:

1. Explore the role of knowledge management in academic libraries
2. Identify the knowledge that exists in Bunda College and Kamuzu College of Nursing libraries
3. Find out how knowledge is used by individuals in the libraries
4. Determine the kind of knowledge required by Bunda College and Kamuzu College of Nursing library staff
5. Determine the gaps between the existing knowledge in the libraries and the knowledge needs of staff
6. Compare the information and knowledge management practices in the libraries

7. Develop a strategy for implementing knowledge management in the libraries

1.4 Research questions

To achieve the aforementioned objectives the study was designed to answer the following research questions:

1. What is the role of knowledge management in Bunda College and KCN libraries?
2. What knowledge management activities exist in the libraries?
3. What are the knowledge related assets that the libraries have?
4. What are the knowledge needs of staff in the libraries?
5. What are the differences and similarities in the information and knowledge management practices between the libraries?
6. How can the libraries use the existing knowledge assets to help them achieve their goals?

1.5 Research methodology

The study adopted both the quantitative and qualitative approaches to research. A questionnaire was the primary tool that was used to collect data. It focussed on the elements of knowledge management that indicate the level of KM maturity in an organisation and these are: employee motivation and competencies; leadership and KM; organisational culture and KM; organisational structure and KM; KM processes; technology and KM; KM performance measures; information and knowledge resources; information and knowledge needs. In addition, an interview schedule was used to obtain further information, clarify ambiguities and anomalies of the questionnaire study and to ensure validity of the results. A

literature study was further conducted to identify major conceptual issues and to place the study within an appropriate contextual framework.

1.6 Significance of the study

The study will provide a basis for developing a knowledge management strategy and implementation plan in the Bunda College and KCN libraries and will thus constitute a significant step towards management of the intangible assets of the libraries. Furthermore, the results of the research project could be utilised as a pilot study to implement knowledge management in the entire University of Malawi Library system. The study could further contribute to the body of knowledge in the field of information and knowledge management and pave the way for further investigations in the field.

1.7 Structure of the report

This dissertation is divided into eight main chapters as follows:

Chapter 1: Introduction

The chapter provides a background and context to the research. It further gives the rationale for the study, the problem statement, research objectives and research questions. It also highlights the methodology that was used and outlines the structure of the report.

Chapter 2: The target organisations

This chapter gives an overview of the University of Malawi particularly the Bunda College and KCN libraries, where the study was conducted. It describes the organisational structures, the mission and the activities that are carried out to achieve the mission for each of the two libraries.

Chapter 3: Theory behind knowledge management

The chapter outlines the theory behind knowledge management and the need for applying knowledge management in an organisation. The concept of knowledge management and related activities of knowledge management are covered. The importance of implementing a knowledge management strategy and the problems that are likely to be faced are highlighted.

Chapter 4: Implementing knowledge management

In this chapter, the process of implementing knowledge management is discussed in detail. The benefits of conducting a knowledge audit before implementing knowledge management are discussed. Three models of implementing KM from which the model of the study was developed are outlined. The chapter also outlines the steps that were followed in conducting the study using the developed model.

Chapter 5: KM critical success factors

This chapter discusses factors to be considered when assessing or implementing KM in academic libraries. These are employee motivation, leadership, organisational culture, organisational structure, KM processes and KM measures. Based on the factors, a model for assessing the libraries' knowledge health is proposed.

Chapter 6: Research methodology

The chapter discusses the design and methodology that was followed to conduct the study. It outlines the population and sample population, data collection and analysis techniques that were employed.

Chapter 7: KM at Bunda College and KCN libraries: discussion of results of the study

The chapter analyses, interprets and discusses the results of the study. The level of KM maturity for the libraries is highlighted. Similarities and differences in KM practices between the libraries are discussed. Challenges to implementing knowledge management are identified.

Chapter 8: Conclusion

The chapter summarises the discussion of the previous chapters in particular chapter 7. It highlights the reasons for implementing knowledge management in an academic library. It suggests means of implementing KM in the libraries of Bunda College and KCN. The chapter provides guidelines for the libraries to follow to make knowledge management successful.

CHAPTER TWO

THE TARGET ORGANISATIONS

2.1 Introduction

This chapter gives an overview of Bunda College of Agriculture and Kamuzu College of Nursing (KCN) libraries where the study was conducted. It provides background, the core activities, and the clientele that the libraries serve. It further outlines the organisational structures of the libraries, as the structure has an impact on KM and is likely to influence decisions about sampling. The information outlined was obtained from the researcher's knowledge of the libraries as he worked in Bunda College library for two years, and from the web sites of the libraries.

2.2 Bunda College library

Bunda College of Agriculture is one of the five colleges of the University of Malawi. Three of the Colleges namely Chancellor College, The Malawi Polytechnic and College of Medicine are located in the Southern Region while Bunda College and Kamuzu College of Nursing are located in the Central Region. Bunda College is on the outskirts of the Capital City Lilongwe.

Each of the colleges has its own library and together the libraries form a network that is called the University of Malawi libraries. The libraries are under the leadership of a University Librarian.

Bunda College library was established in 1967 when the college opened its doors to the first students. During that time, there was only one librarian and the collection of the library was small. As a department in the college, the library was expected to provide access to information sources required by students, researchers and lecturers.

At the time of establishment, the college offered few programmes. It focused on training individuals to Diploma level in Crop and Livestock production. The reading space capacity of the library at that time was about 60 people. The College increased its number of programmes to include Agribusiness, Agricultural Economics, Aquaculture and Fisheries Science and Natural Resources Management among others and began to offer all the programmes up to Bachelor's degree level with some to Master's level. Such a change resulted in the need for more space, books and staff in the library. The library therefore, was extended and the capacity with respect to reading space increased to approximately 300. Furthermore, the print collection increased to over 50,000 volumes from the initial about 10,000 volumes. The number of staff also increased to 18 of whom three are designated librarians.

In addition, the library established an Internet Café where students and staff use the Internet at a modest fee. The Café was established in response to the demands of students and staff.

The mission of Bunda College library is

> "To provide the most up to date and relevant information that would support the learning, teaching and research in the University of Malawi and the whole country at large" (Bunda College Library, 2008)

The core business of the library therefore, is to support learning, teaching, and research programmes of the College and the University through various activities. The activities include among others providing information literacy training to students and staff, assisting the users in conducting literature searches and updating the academics and researchers on the latest publications in their areas of interest.

Apart from offering core services related to its mission and to the primary users, the library also offers a Question and Answer Service (QAS), which is managed by one of

the librarians. The QAS is a project initiated by the Technical Centre for Agricultural and Rural Cooperation (CTA).

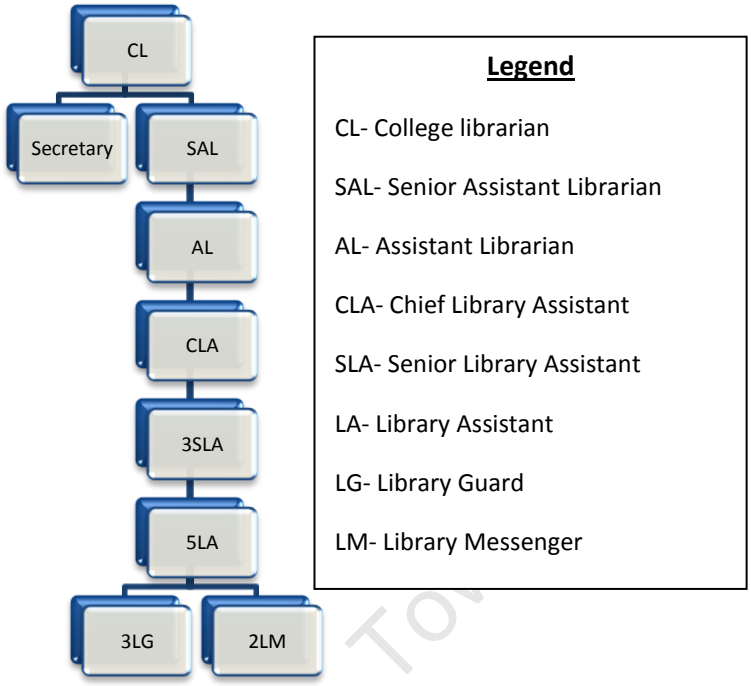
2.2.1 The Collection

Although the collection of the library relates largely to agricultural subjects it also includes Home economics and Human Nutrition as well as Basic Science information materials, which include among others Biology, Chemistry, Physics and Mathematics. The library also subscribes to a number of electronic databases through the Malawi Library and Information Consortium (MALICO). It also has stand-alone databases, which include the Maize, Aquaculture and Fisheries Science, Aquatic Biology Aquaculture and Fisheries Resources (ABAFR), CAB abstracts and The Essential Electronic Agricultural Library (TEEAL) databases.

2.2.2 The staff

The senior staff members include the Librarian, Senior Assistant Librarian and Assistant Librarian of the library. The junior staff members include the Chief library assistant, three senior library assistants and five library assistants. In addition to these, there are the secretary, three library guards and two cleaners/messengers. The organisational structure of the library can be summarised as follows to indicate the hierarchical structure.

Figure 2.1: Bunda College library organisational chart



2.3 Kamuzu College of Nursing

The College has two campuses in the central and southern regions of Malawi. The central region campus, which was the focus of the study, is the main campus and is situated in the capital city, about a kilometre away from the central business district, close to Kamuzu Central Hospital.

The college was established in 1979 to train nurses who would work in government hospitals. It trained nurses to Bachelor's degree level until 2007 when it introduced a masters' programme in nursing. The college has only one faculty, the faculty of nursing, and five departments namely: Basic science studies; Community and mental health; Maternal and child health; Medical / Surgical nursing; Clinical nursing department. It offers the following programmes: Master of Nursing; Bachelor of Science in Nursing (Generic); Bachelor of Science in Nursing (Post basic); Bachelor of Science in Advanced Midwifery; Diploma in Nursing / Midwifery (Upgrading) ; University Certificate in Midwifery.

Although the library's mission is not written down, it is mandated to provide support to learning, teaching and research activities in the departments. It therefore provides user training, access to both print and electronic information materials and the Internet, to students and staff.

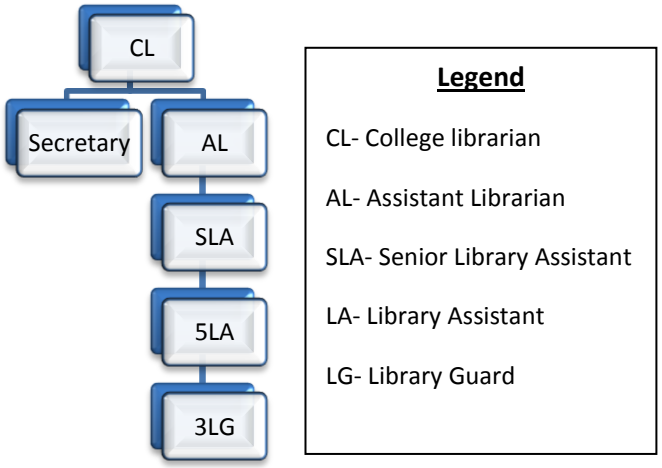
2.3.1 Collection

The collection is largely composed of medical science information materials with a significant number of pure science information materials. These materials are in print and electronic formats. The print collection is composed of books and a few journals while the electronic collection is composed of electronic journals. Electronic journals are made available through funding from the International Network for the Availability of Scientific Publications (INASP), the Malawi Library and Information Consortium (MALICO) and the World Health Organisation (WHO). Books are purchased mainly from the library budget.

2.3.2 Staff

The head of the library is the College Librarian who is trained to Master's level. Under the College Librarian is the Assistant Librarian who also has a Master's degree. However, at the time of investigation the position of Assistant Librarian was vacant because the previous Librarian had retired and the Assistant Librarian became the acting College Librarian. Below the Assistant Librarian are three senior library assistants, but at the time of investigation there was only one because the other two were on study leave. The senior library assistants have a minimum qualification of a certificate in Library and Information Science. Below the senior library assistants are library assistants with a minimum qualification of the Malawi School Certificate of Education. In addition to these the library has a secretary, a cleaner and three guards. The diagram below summarises the library organisational structure:

Figure 2.2: KCN library organisational chart



2.4 Conclusion

This section provided an overview of the Bunda College and KCN libraries concerning their missions and activities associated in achieving the missions. The aim of providing the background was to establish a framework on which KM implementation will be based. In addition, the results of the study and recommendations will be linked to the core activities and mission statements of the libraries.

CHAPTER THREE

THEORY BEHIND KNOWLEDGE MANAGEMENT

3.1 Introduction

This section discusses the theory behind knowledge management by surveying and analysing the literature. It provides a broad perspective of knowledge management to serve as background to the knowledge audit. It further outlines knowledge management and its related concepts, which will be the basis for developing a framework for the study.

Knowledge management has attracted much attention over the past two decades, with the focus varying according to the needs of both the organisation and individuals. Wiig (1993: xvii) mentions that executives and professionals have generated interest in the topic because of its wide coverage and its importance to the future of organisations. Because of the variety of interests and needs, there exists a wide range of views on knowledge management.

The influence of globalisation and the concepts of a knowledge society cannot be overlooked although not many authors indicate the relationship of knowledge management to these explicitly. Considering this, Kuhlen (2003) suggests a paradigm shift in knowledge management focus. He argues that the classic view of unveiling what organisations know and making that knowledge available to the right people at the right time does not match the changing environment we are living in. The communicative approach, according to him, is a more relevant approach.

The changing environment, which consequently influences the needs of organisations' clientele, present challenges to organisations to produce goods and services of high quality in order to remain relevant to their customers. Organisations now widely recognise knowledge as an important factor in organisations and use it to achieve desired results (Houghton and

Sheehan, 2000). Investment in skilled human capital and research and development activities is necessary for organisations to remain competitive in the knowledge economy. Continuous learning is necessary for both individuals and organisations.

Furthermore, the proliferation of Information and Communication Technologies (ICTs) has resulted in improved access to information and increase in its dissemination. ICTs have also enabled global collaboration and the emergence of global markets in which competition is tough. Organisations in this environment therefore need to embrace new methods of conducting business and making better use of what they know best.

Knowledge management can present opportunities for organisations to perform better in the dynamic environment. Wiig (1993) asserts that when valuable knowledge is made available and used at the right time with competence, it can improve all factors that lead to distinguished performance. Knowledge management therefore, is not an end in itself.

Even though knowledge management is recognised widely as a tool for improving organisations performance, it has proved difficult to implement. Some authors like Hylton (2002) have outlined reasons why knowledge management initiatives fail and have generally attributed failure to the superficial nature of the knowledge audits that have been conducted or to entirely omitting to conduct an audit as a preliminary step to implementing knowledge management. Liebowitz (1999: iv) again considers the problem from a conceptual point of view. He mentions five reasons why organisations find knowledge management hard to implement. These include lack of a knowledge-sharing environment, difficulty in quantifying the value of knowledge as opposed to other organisational assets, the belief that knowledge management is another way of referring to information management, lack of commitment by top management and the labelling of almost every tool as a knowledge management tool.

To obtain a clearer picture of knowledge management it is necessary to consider its related concepts. Wiig (1993: 70), asserts that managers should understand "what knowledge is, how different people acquire, process and use it, and how it can be created, managed, harnessed, distributed and controlled" before introducing knowledge management. He further mentions the need to develop an understanding of the concept of knowledge by all those involved in knowledge management. It is for these reasons that this section discusses knowledge and the other conceptual underpinnings of knowledge management.

3.2 The concept of knowledge

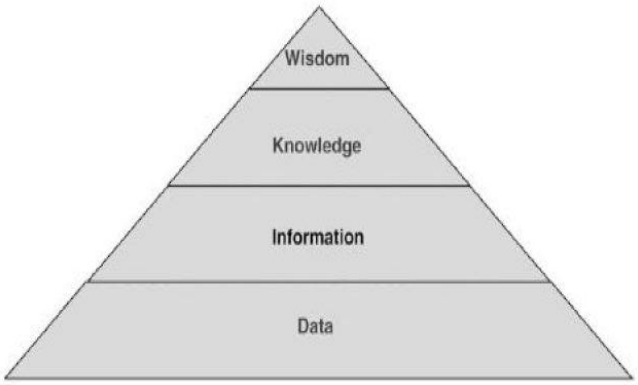
Knowledge *per se* has proved to be a difficult concept to define because of its abstract nature. However, realising that knowledge is abstract is a step towards defining what knowledge is. A number of authors have defined knowledge by distinguishing it from data and information. Data are "representations such as characters to which meaning may be attached" (Penrod & Douglas, 1986). Data therefore, do not have meaning without organisation, manipulation and context. Information is data that have been processed to provide meaning. Knowledge "is information in context to produce an actionable understanding" (Rumizen, 2002). To clarify the relationship of the concepts of data, information and knowledge, a number of authors use the knowledge hierarchy.

3.2.1 The knowledge hierarchy

The knowledge hierarchy is commonly known as the DIKW (Data, Knowledge, Information, and Wisdom) hierarchy. At the bottom there is data which when interpreted and given meaning becomes information. Pijpers (2009:7) says information is data in context. When information is applied to situations it becomes knowledge. Knowledge enables reasoning, explaining situations and attaching meaning to situations. Some include in the hierarchy the concepts of understanding or intelligence as a level before attaining wisdom. The wisdom level involves using knowledge in new ways and applying it to different situations (Pijpers,

2009: 8). Beyond wisdom is enlightenment also referred to as insight. Figure 3.1 shows the graphic presentation of the hierarchy.

Figure 3.1: DIKW hierarchy



Source:Fricke, M. 2008.

Others have proposed an inverted hierarchy to explain the relationships (cf. Braganza, 2004). Braganza asserts that knowledge leads to information and data respectively. Some have proposed a two way hierarchy (cf. Nissen, 2002). Nissen argues that the one way hierarchy implies that the only possible transition is from data to knowledge. He suggests that the transition from knowledge to data is also possible hence a two way hierarchy.

Hicks, Gallup and Datero (2007) propose a five tier hierarchy which is made up of individual knowledge; facts: documents, databases, data warehouses (data); influence: decision support systems, learning systems, yellow pages, reports (information); solutions: intelligent systems, best practices (knowledge); innovation: knowledge based goods and services.

They assert that the DIKW implies the absence of data-knowledge and knowledge-data transformation. They argue that the focus of KM on personal knowledge makes the DIKW hierarchy an inappropriate tool in KM.

Fricke (2008) also criticises the DIKW hierarchy arguing that it is not useful in KM. He says it assumes that all information must first be data while in fact some information has never

been data and thus leaves out such information. In addition, Fricke asserts that the hierarchy encourages uninspired methodology which has led to meaningless collection of data hoping that one day it will be useful information. Practically, not all data can be processed into useful information. These arguments show how complex the relationship between these concepts is.

It is thus asserted that the data-information-knowledge relationship does not necessarily follow a hierarchical approach. Such an approach is a far too simplistic way of viewing the relationships. It can be argued that to organise data, attach meaning and give context to information, one needs knowledge (The constructivist approach to learning). The hierarchy however is still useful for understanding the relationship between these concepts at a very generic level. Such discussion of the appropriateness of the DIKW hierarchy engenders awareness of the complexities associated with the concept of knowledge as well as the possible sources of knowledge. This begs the question of defining knowledge.

To distinguish knowledge from information, Wiig provides the following definitions:

> Knowledge consists of facts, truths, and beliefs, perspectives and concepts, judgments and expectations, methodologies and know-how. Knowledge is accumulated and integrated and held over longer periods to be available to be applied to handle specific situations.
>
> Information consists of facts and data that are organised to describe a particular situation or condition. Knowledge is subsequently applied to the available information about a particular situation and to decide how to manage it. We use knowledge to determine what the situation or condition means. (Wiig, 1993: xvi)

As mentioned above, the numerous definitions and the discussion around the DIKW hierarchy are evidence that knowledge is not simple to define. However, for the purpose of this paper, the definition by Wiig shall be adopted because it makes possible the division of knowledge into different categories, viz: public knowledge (see also explicit knowledge, section 3.2.2), shared expertise and personal knowledge (see tacit knowledge, section 3.2.2).

3.2.2 Categories of knowledge

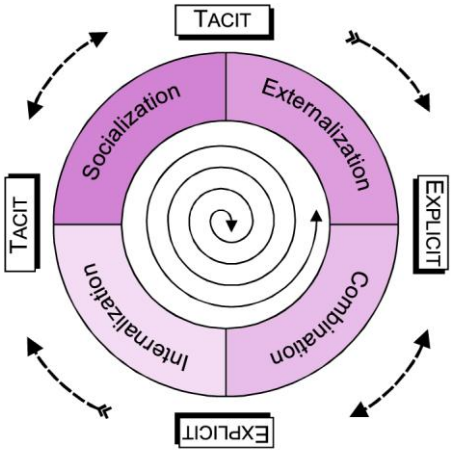
To understand the concept of knowledge further, it is better to define it by categorising it. The two major categories of knowledge are explicit and tacit knowledge. Explicit knowledge is what an individual knows and which can be expressed clearly in words. It can be articulated, documented and therefore can be captured, stored and transmitted (Rumizen, 2002: 8). On the other hand, tacit knowledge includes skills, experiences, expertise, judgement and insights, which are hard to express. Tacit knowledge therefore, is hard to capture, and transmit (Rumizen).

Takeuchi and Nonaka (2004) describe the process of knowledge conversion through their SECI model. They divide an organisation into three entities, which are capable of creating knowledge namely the individual, the group and the organisation. They argue that knowledge creation starts at an individual level by sharing and creating tacit knowledge through direct experience (Socialization). The tacit knowledge is then transferred through dialogue and interacting with others in a group (Externalisation). The knowledge is applied to processes and work in the organisation (Combination). The individual acquires new tacit knowledge by learning how to perform tasks better and gaining new skills (Internalization).

The modes of knowledge conversion can be summarised as follows

- Socialization: Individual to individual; tacit to tacit
- Externalization: individual to group; tacit to explicit
- Combination: group to organisation; explicit to explicit
- Internalization: organisation to individual; explicit to tacit

Figure 3.2: The SECI model



Source: Nonaka, I. 2007.

According to the SECI model, the process of creating knowledge in an organisation is continuous and therefore individual and organisational learning is continuous in a knowledge-creating organisation. Nonaka (1991) argues that the creation of knowledge is the renewal of the organisation as well as of individuals. It is the core of the company's human resources strategy. Once individuals have created knowledge it later on becomes the organisation's knowledge.

Although the SECI model has received much criticism (cf. Gourlay, 2004) it still gives a picture of the complexity of the concept of knowledge. The model also depicts the role of organisational sharing and it is useful for identifying and evaluating knowledge management activities (Bouthiller & Shearer, 2002).

Wiig (1999a) in turn divides knowledge into three categories and these are public knowledge, shared expertise and personal knowledge. He says public knowledge is explicit, transferable through teaching and is shared routinely; Shared knowledge is shared by workers and includes both explicit and tacit knowledge; and personal knowledge is the knowledge that exists in the minds of people and it is tacit.

Wiig (1999b) describes the five stages in which personal knowledge evolves in what he calls the personal knowledge evolution. The stages include:

- Tacit subliminal knowledge - non-conscious knowledge often not well understood.
- Idealistic vision and paradigm knowledge - part of it is known and explicit while much of it is still tacit.
- Systematic schema and reference methodology knowledge - knowledge about underlying systems, general principles and problem solving strategies that is most of the times explicit.
- Pragmatic decision making and factual knowledge - decision making knowledge which is practical knowledge and most of the times explicit
- Automatic routine knowledge - procedures are internalised because of experience.

The stages of personal knowledge evolution indicate how diverse the knowledge within an organisation can be. They enable the identification of various types of knowledge and hence make possible the development of ways to ensure that the knowledge is managed. Against this background of knowledge, it is therefore possible to define knowledge management.

3.3 Knowledge management

As mentioned in Chapter 1, although practiced unconsciously for aeons, knowledge management is a relatively new management paradigm. People in various professions have defined knowledge management basing their definitions on the professional environment with which they are familiar (Srikantaiah, 2000). Having a variety of definitions is thus not surprising considering that knowledge management really depends on the environment in which a particular strategy is to be implemented.

Defining knowledge as “what we know”, Wilson (2002) contends that we cannot manage what we know because we have very little control over it. He therefore says that the term

knowledge management is confusing. Wilson also argues that in most cases what is referred to as knowledge management is information management or information and communication technologies management. Other authors however distinguish clearly between information management and knowledge management (cf. Bouthiller & Shearer, 2002). Much as information management and knowledge management overlap, it is necessary to note that the two are not synonymous.

Rumizen (2002:9) defines knowledge management as "systematic processes by which knowledge needed for an organisation to succeed is created, captured, shared and leveraged." It is believed that for organisations to thrive in the knowledge economy, they should use the intangible asset of knowledge effectively. Thus, organisations should encourage knowledge creation, sharing of knowledge, developing and retaining expertise, capturing knowledge that is available to the organisation whether internal or external.

Wiig (1993: 22) outlines the attributes that distinguish KM and lists what is not KM. He says knowledge management is:

- A management philosophy that takes explicit advantage of knowledge to make the organisation act intelligently
- A management initiative that views and understands knowledge as it is used in operational situations and for long term strategic improvements
- Ways to find, analyze, and focus on critical knowledge areas and associated management opportunities, and ascertain that proper knowledge is available wherever needed.
- Methods to allow managers to identify and characterize knowledge contents, needs, and opportunities associated with specific operations.

Knowledge Management is not:

- A set of techniques without a common framework
- A different label for Human Resources Management and training
- A standardised methodology for "how-to" KM.
- A different name for "expert systems"
- A set of computer application programmes

- A system to control distribution and security of knowledge

Townley (2001: 45) defines knowledge management as "the set of processes that create and share knowledge across an organization to optimize the use of judgment in the attainment of mission and goals." He says it involves capturing of knowledge about processes, customers, competition and products and making it available to the right people at the right time in an organisation. Knowledge management supports collaboration in creation of knowledge for example the use of communities of practice and other platforms that would promote the same. It also recognises the fact that knowledge transfer is a human activity. By employing knowledge management therefore, an organisation is able to create value from its knowledge assets. Townley contends that an appropriate organisational climate can encourage knowledge sharing because knowledge is created in the human brain.

Concurring with Townley and Rumizen, White (2004) says that knowledge management is "a process of creating, storing, sharing and reusing organisational knowledge to enable an organisation to achieve its goals and objectives". The definition by White expresses in clear and concise terms what knowledge management is and will be used as a framework to circumscribe knowledge management for this dissertation. Furthermore, the activities mentioned in the definition are closely related to what will be investigated in this study.

Rumizen (2002) asserts that KM involves an understanding of how tacit and explicit knowledge affects the performance of an organisation, the link between knowledge use and business strategy and the value of knowledge management in an organisation. Rumizen further argues that many KM initiatives fail because they lack proper management of processes that need to take place in order for the initiative to be successful, lack of incentive

plans that match the new processes, lack of proper metrics to measure performance and lack of better methods of introducing change into the organisation.

It is clear from the various definitions discussed that KM is a systematic process and that this process involves the management of intellectual assets. KM therefore can be defined as a systematic process that ensures that intellectual assets are utilised for the improvement of an organisation's performance. By employing KM, intellectual assets that are available within the organisation can be identified and put to the necessary use. Furthermore, knowledge that is not available, but required by the organisation, can be identified and ways of acquiring these devised. The following section elaborates on what KM entails and has been referred to as the pillars of KM.

3.3.1 The Pillars of KM

Wiig (1993:20) identifies the following three pillars of knowledge management, which include:

- Exploring knowledge and establishing its adequacy: survey, categorise, and analyse knowledge and its related activities; elicit and codify knowledge; organise knowledge.
- Finding the value of knowledge: determine and show the value that knowledge and its proper management would add to an organisation.
- Managing knowledge actively: leverage knowledge; ensure that knowledge related activities are integrated, implemented and monitored.

It is argued that Wiig's three pillars do indeed highlight the main KM activities. KM involves identifying the knowledge assets, as it would not be possible to manage them if they are unknown. Furthermore, it involves finding the value of the identified knowledge assets to an organisation because not all knowledge would contribute to improvement of performance of

individuals and the organisation. It also involves putting the knowledge assets to use and thus ensuring that they are exploited for the benefit of the organisation. Having arrived at an understanding of what KM entails and circumscribing its main activities, it becomes clear that before embarking on the KM implementation process an information and knowledge audit should be conducted to establish the knowledge state of the organisation, i.e. to scope the organisational information and knowledge environment (both internal and external).

3.3.2 Knowledge management in academic libraries

Academic libraries are greatly influenced by changes within their parental institutions as well as external changes. Internal changes would include the changing demographics of student bodies, changes in curricula, as well as the introduction of new methods of conducting daily business such as use of ICTs in teaching, learning and research activities. External changes include the changing standards at national and international levels as libraries like any other organisation seek to be on par or better than other similar libraries. These forces therefore require necessary competencies in librarians to meet the demands of the dynamic environment.

Academic libraries like many other organisations are facing the challenge of the electronic evolution. Library user behaviour and expectations are being influenced by the Internet and its associated technologies. Academic libraries therefore, have to ensure that they remain relevant to their users by adapting to the changing environment. Libraries should know their users' needs. The knowledge of users' needs is equivalent to what Skyrme (2007) calls the "customer knowledge lever". The customer lever of knowledge requires both external and internal knowledge management strategies. Internally libraries can make use of the data that they collect everyday to identify different needs. Externally libraries may need to learn from other libraries or obtain evidence from research conducted in other libraries and use it to develop their own knowledge about their users' needs. Libraries need to collect data that is

relevant and required for a particular use (Townley, 2001: 48). For example if the library wants to improve access to a particular database then statistics on the use (successful or failure rates, etc.) should be collected.

Townley (2001) asserts that academic libraries have failed to generate organisational knowledge that is required to improve the libraries' operations and effectiveness. He mentions a number of areas that may help to improve library operations and these include:

- Transfer of knowledge, which is possible through commitment, training and support. Selection of content for the users for example would involve knowledge about collection use or knowledge about a faculty's interest. Without appropriate knowledge and opportunities to learn how to select material, selectors are likely to fail to meet the users' needs.
- Creation of knowledge repositories that would provide information about library operations and user activity. For example, a combination of data about new monographs and circulations might help in the distribution of reviews to interested individuals.
- Improving knowledge access by creating expert networks and communities of interest. This would demand advocacy and creating awareness about the opportunities presented by making use of such platforms.
- Enhancing the knowledge environment by taking part in creating an environment that encourages transfer and sharing of knowledge. Librarians should share the knowledge they have with others in the library or within an institution. For example the reference librarian's knowledge about users can have an impact on library policy or regulations if it is made known to management.

- Manage knowledge as an asset by valuing the knowledge embedded in their products and services.

Townley's view is that librarians should play a role in managing organisational knowledge. By doing so they can make a difference to the libraries, the institutions and the users they serve.

White (2004) warns that trust and knowledge hoarding can affect knowledge management programmes and that sharing is only possible if the right organisational environment is created. She further suggests that planning knowledge acquisition is one of the ways of achieving successful knowledge management and organisational development in academic libraries. Training, attending conferences, and communicating with peers can help librarians acquire the knowledge necessary to achieve the goals of the library (White, 2004: 7).

3.4 Conclusion

This chapter has discussed knowledge management and its related concepts. It has laid a foundation on which an information and knowledge audit can be based. It is important to note that an understanding of the concepts covered in this chapter is necessary to appreciate the role of KM in any organisation. It is argued that KM should be the hub of academic library activities to ensure that the libraries adapt to change and remain relevant.

CHAPTER FOUR

IMPLEMENTING KNOWLEDGE MANAGEMENT

4.1 The Information and Knowledge audit

An information and knowledge audit is carried out for a number of reasons. As organisations realise the importance of information and knowledge resources for their daily business, they need to devise ways of managing these resources. However, it is impossible to manage what is not known; therefore, organisations need to discover to what extent knowledge management is being practised (consciously and unconsciously), how conducive to KM the organisational environment is and what knowledge and information sources exist in the organisation.

Merely identifying the sources of information and knowledge is not enough to assist organisations in managing the resources. Organisations should also discern the strategic value of information and knowledge resources in achieving organisational goals (Skyrme, 2007). Furthermore, organisations should identify the information and knowledge needs i.e. what knowledge is already known and present, what knowledge would be required by whom and for what purpose, and the possible means of obtaining the required knowledge. By doing this they can identify gaps in their resources and rectify the situation.

Many experts and authors of knowledge management regard the knowledge audit as a necessary step before implementing information and knowledge management in an organisation (cf Hylton 2002; Cheung et al., 2007). As has been mentioned in Chapter 1, a number of authorities assert that many knowledge management initiatives have failed because of the absence of a proper information and knowledge audit (Hylton, 2002; Perez – Soltero et al., 2005). The researcher concurs with these views and agrees that it is impossible

to implement an effective knowledge management initiative without carrying out an information and knowledge audit to pave the way and lay the foundation for a successful knowledge management programme.

The audit provides direction for the strategic management of information and knowledge, which is the essence of knowledge management. In addition, it helps to determine gaps between the existing and the desired situation and the ways in which these gaps can be filled. Furthermore, the audit helps in focussing the attention of employees towards the importance of information and knowledge management (the value of information and knowledge). Also, it provides an opportunity to train staff about the existence and value of information and knowledge in an organisation (Skyrme, 2007). Employees who know the value of information and knowledge are likely to be willing to contribute positively towards the effective management of knowledge for their own benefit and the organisation's.

Before delving further into the details of the information and knowledge audit, it is necessary to define the audit. In the next section, different views on the topic are considered.

4.1.1 The information and knowledge audit defined

To define an information and knowledge audit, it is necessary to consider both information and knowledge audits. Although these have been considered separately in most of the literature, it will be noted that the knowledge audit cannot be carried out exclusively without also conducting an information audit.

An information audit is defined as a "systematic examination of information use, resources and flows, with verification by reference to both people and existing documents, in order to establish the extent to which they are contributing to an organisation's objectives." (Buchanan & Gibbs, 2007: 159)

Botha and Boon (2003), define an information audit as the systematic examination of information resources, information use, information flows and their respective management in an organisation. It includes identifying users' information needs and how the needs are met. It involves a cost benefit analysis of information resources.

An information audit therefore is mainly concerned with information or explicit knowledge. Although some authors have regarded an information audit as a knowledge inventory (cf. Skyrme, 2007), the audit is more than an inventory of information sources. It goes beyond mere recording of information sources to identifying information use and flows as well as recommending the best way to manage the available resources (Buchanan & Gibbs, 2007: 171).

A knowledge audit is a tool that assesses potential stores of knowledge (Liebowitz et al., 2000: 3). It is an "assessment of the way knowledge processes meet an organisations knowledge goals" (Perez – Soltero et al., 2005:2). Hylton (2002) says it is "a fact-finding, analysis, interpretation, and reporting activity, which includes a study of the company's information and knowledge policies, its knowledge structure and knowledge flow".

The knowledge audit goes beyond information and considers tacit knowledge as well (Skyrme, 2007). It focuses both on the people and the processes they are engaged in to generate, store, use and share knowledge. It is a process of assessing an organisation's knowledge environment (both internal and external) to determine an appropriate method of managing the knowledge.

Such an understanding of the information and knowledge audit is the basis for establishing its place in knowledge management.

4.1.2 The relationship between the information and knowledge audit and KM

It is easy to identify the relationship between the information and knowledge audit and KM. To begin with, KM experts and authors contend that the information and knowledge audit should be the first step in implementing KM. (Hylton, 2002; Perez-Soltero et al., 2005; Cheung et al., 2007).

It was noted in Chapter 3 that KM is the process of utilising organisational knowledge to the benefit of the organisation by enabling employees and the organisation to act intelligently (Wiig, 1993) i.e. KM enables organisations to use existing knowledge to achieve objectives by employing more effective methods while minimising the required resources (time, materials, etc.). In this vein, it is not possible to manage knowledge if the knowledge resources are not known.

The information and knowledge audit provides the means of identifying what organisations know and what they need to know. Furthermore, it reveals some of the factors that may impinge on KM implementation (e.g. organisational culture and structures, flow of knowledge, etc.) and thus provides the opportunity to overcome the barriers. The audit thus paves the way for developing a strategy taking into account the opportunities and threats to KM. It also gives a chance to prioritise activities in the knowledge management process i.e. the areas that require immediate attention and ones that may produce quick results.

It should however, be noted that an information and knowledge audit is a continuous process that may not always lead to quick wins. Nevertheless, it helps to align the KM initiatives with organisational goals and ensures that KM activities support the goals.

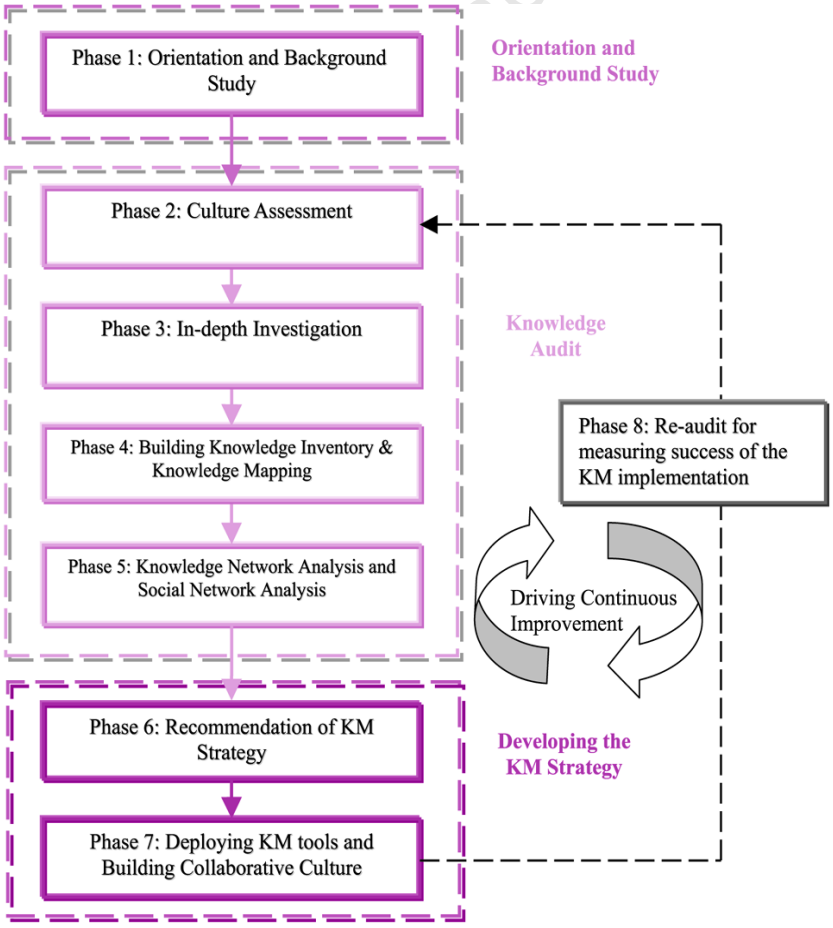
4.1.3 Steps in the information and knowledge audit

According to Skyrme (2007), the following are the major steps involved in conducting a knowledge audit.

1. Scoping and planning: how wide and deep the audit should be; what areas to cover; how much effort to invest.
2. Fact-finding: the core activity that involves collecting data on knowledge needs; accessibility and quality of knowledge; knowledge flows and blockages; it also reviews contextual factors that impact on effective knowledge management.
3. Analysis and interpretation: identifying critical knowledge areas needing more attention, for example based on their overall importance versus their current usefulness; uncovering knowledge gaps and duplication.
4. Developing deliverables: as well as a report, these may include lists and characteristics of knowledge resources and sources; the output of an audit typically feeds into a KM strategy and action plan.
5. Stimulating action: simply reporting on the state of knowledge resources will not change them for the better; this stage is about follow-up and putting any recommendations into action.

Cheung et al., (2007) also provide detailed steps that should be followed when conducting a knowledge audit. Figure 4.1 graphically depicts their model of the audit process:

Figure 4.1: An information and knowledge audit model



Source: Cheung et al. (2007:142)

A more detailed outline of Cheung et al's steps of an information and knowledge audit follows

- Orientation and background study – understanding the organisation's environment and defining the organisation's KM goals to match the audit programme to the organisation. This includes developing a plan that outlines the scope and the set of tools to be used; collection of background information such as the organisational chart, workflow, ICT infrastructure, etc..

- Organisational culture – this helps to measure the organisation's readiness for KM implementation by studying the culture of knowledge sharing, communication practices, management motivation, organisations learning ability, and related organisational barriers and or levers. It is achieved by administering a questionnaire to individual employees.

- In-depth investigation - This includes conducting further questionnaire-based surveys, individual interviews, focus group discussions, participative observations.

- Building the knowledge inventory and knowledge mapping – involves counting and categorising an organisation's explicit and tacit knowledge.

  Explicit knowledge may include numbers, types and categories of documents, databases, libraries, intranet websites, links and subscriptions to external resources; the location of these; organisation and access; purpose relevance and quality; and subsequent use.

  Tacit knowledge includes numbers and categories of people; their locations; job levels and types; academic and professional qualifications, core knowledge

and experience; how do the people make decisions; on the job training, learning and self-development.

"Knowledge mapping is a process of assessing and linking information, knowledge and competences held by individuals and groups within an organisation." (Cheung et al., 2007:144). It involves developing a visual representation of the organisation's knowledge.

- Knowledge network analysis and social network analysis - The knowledge network analysis is done to identify methods used by individual workers to acquire knowledge. The social network analysis enables mapping of relationships and knowledge flows between individuals, groups, the organisation and technologies.

- Recommending of a KM strategy – Involves production of a knowledge audit report from the observations in the previous phases that leads to meaningful input into KM strategy development.

- Deploying KM tools and building a collaborative culture- includes identifying and selection of appropriate collaborative tools.

- Continuous knowledge re-auditing – conducted to monitor and guide continuous improvement.

From the two models that outlined the conduct of an information and knowledge audit, it can be observed that the elements of planning, data collection, data analysis and developing deliverables form the foundation of an audit. It is contended therefore, that for an audit to be successful the following fundamental steps should be taken:

- Problem definition – there should be a problem whose solution would be found by conducting the knowledge audit.
- Planning – this should include formulating objectives as well as methods and tools to be used in achieving the same.
- Explaining intent and rationale – this should be done to obtain management buy-in. After making management to understand, the intent and rationale should also be made known to all potential participants.
- Data collection – this should involve identifying knowledge assets available to an organisation and the current knowledge management practices. It can be achieved by administering a questionnaire and conducting focus group discussions or individual interviews.
- Data analysis and interpretation – in this step, define the flow of knowledge, map the knowledge resources and establish the KM maturity level.
- Compile a report – the report will indicate the results and recommend a strategy or suggestions for implementing KM (improving KM where already implemented).

The steps are merely a guide for developing methodologies that are suitable for a particular environment. They can be adapted and applied to a variety of environments. The essence of conducting the audit is to implement or to improve KM in an organisation. In the following section, the process of implementing KM is discussed.

4.2 Implementing knowledge management

Developing a carefully constructed KM implementation strategy is a necessary step to make KM work. After knowledge sources, gaps and opportunities have been identified through the information and knowledge audit, a strategy for implementing knowledge management should be developed. The strategy provides a framework on which KM is based.

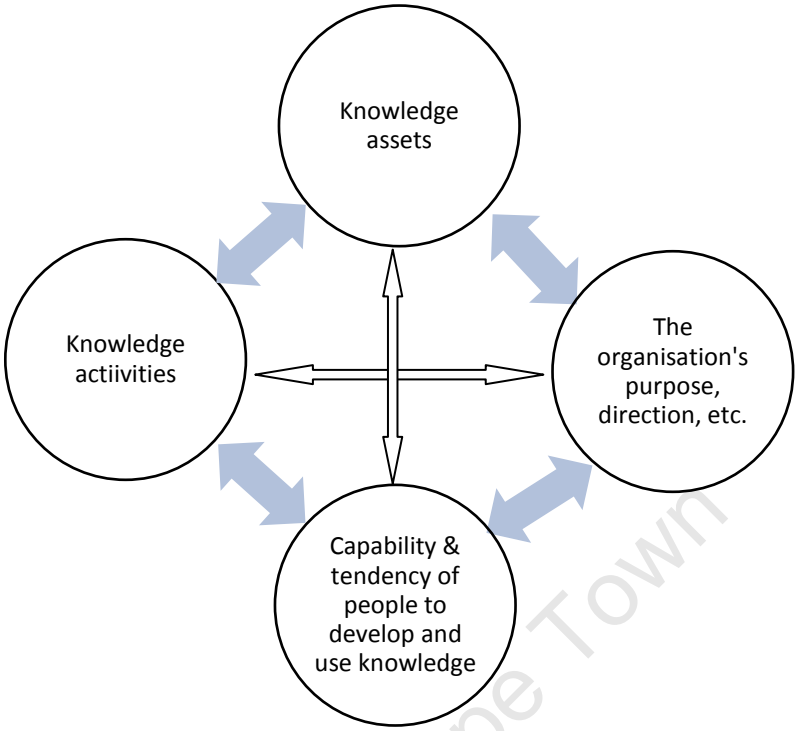
As the strategy is expected to be the output of the information and knowledge audit, this step and the audit cannot be separated. Synder & Wilson (2002: 159) suggest that it is necessary to determine the organisation's readiness for KM before implementing KM. This is usually done during the audit. In an organisation where knowledge management is being introduced for the first time, implementation starts with the knowledge audit. In an organisation where KM is already in place, the knowledge audit is carried out for continuous improvement of the programme.

Following a KM implementation strategy is necessary if the KM activities are to be relevant to a particular environment. Furthermore, it helps to ensure that the activities contribute to the achievement of organisational goals. The relationship between strategy and implementing knowledge management is apparent in the implementation models that are presented in this dissertation. Before delving into the models though, the researcher will highlight the relationship between the organisational environment and knowledge management as it is important in implementing knowledge management.

4.2.1 The organisational environment and knowledge management

Every organisation has a unique environment, which in turn determines the uniqueness of the strategy to be employed when knowledge management is implemented. However, some attributes of the organisational environment are generic and relevant to all knowledge management activities. As outlined by Wiig (1993: 25), these include the organisation's purpose and direction and the capability and tendency of people to develop and use knowledge. The diagram below summarises how these two attributes influence and are influenced by knowledge management.

Figure 4.2: Key areas of knowledge management



Adapted from Wiig (1993: 26)

Each area in the figure has both a direct and an indirect impact on the other. For instance, the organisation's purpose and direction determines what knowledge activities would be useful to the organisation. In turn, the activities assist the organisation to achieve its purpose. What is more, the capability and tendency of people to develop and use knowledge means that knowledge assets are being put to good use. The tendency however cannot exist without a framework for knowledge activities. The implication is that KM activities should be integrated with other organisational programmes. Employees should not perceive them as extra work. It is important to ensure that KM supports organisational goals. The following models depicting the KM implementation process illustrate this last point clearly.

4.2.2 KM implementation models

Three models of implementing KM are outlined and discussed respectively, i.e. those of Levett and Guenov, Wiig and Skyrme.

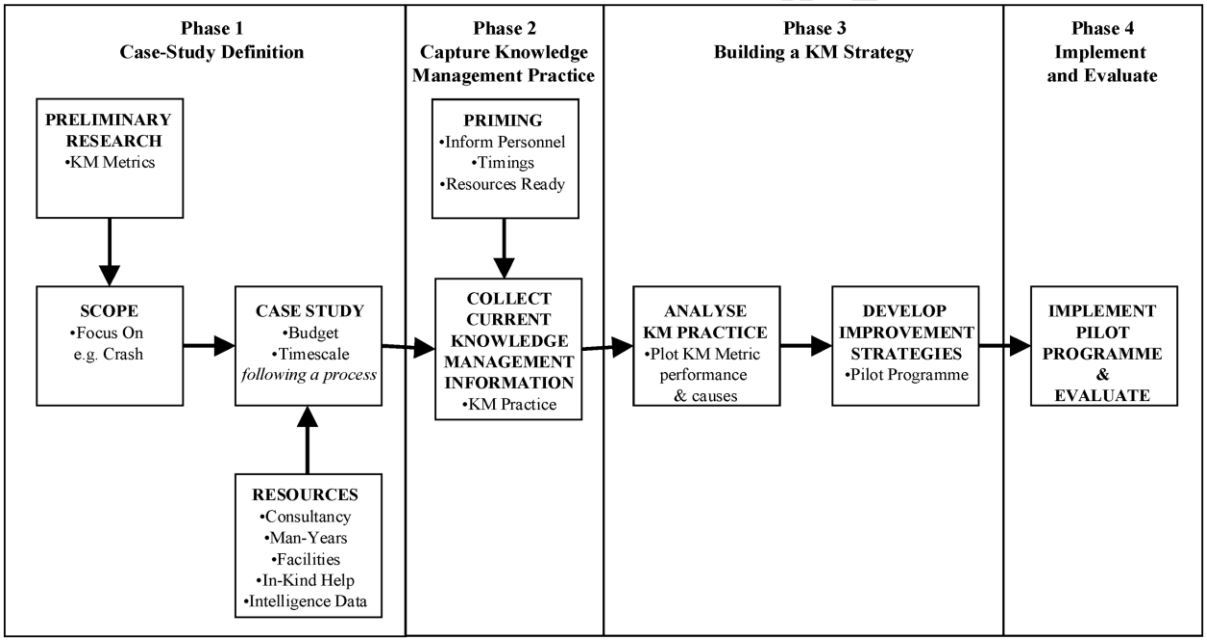
Levett & Guenov (2000) model

Levett & Guenov in their study of an automotive environment suggested a four-phase model of implementing knowledge management.

- Phase 1: Case study definition
- Phase 2: Capture KM practice
- Phase 3: Building a KM strategy
- Phase 4: Implement and evaluate KM programme

Figure 4.3 illustrates the model

Figure 4.3: A model by Levett &Guenov



Source: Levett& Guenov (2000:260)

Phases 1 to 2 of the model are in fact covered by a knowledge audit. Phases 3 and 4 represent the post – audit actions. The model suggests a case study approach. Starting with a particular department in an organisation, would for instance make the KM activities manageable as well as provide insight into what should be expected when implementing KM in the whole organisation. The model also indicates that KM is an on-going process. Once implemented, KM programmes should be evaluated periodically to enable growth and improvement.

However, the model does not highlight all the important issues to consider when implementing knowledge management. As would be observed from Wiig's model other steps can be added to Levett and Guenov's model.

Model by Wiig (1999)

Unlike Levett & Guenov, Wiig (1999: 3-40) proposes a generic model with the following stages:

- Obtain management understanding and commitment to implement knowledge management. This stage requires that management buys-in to the KM programme, sponsors it and supports it.
- Map the knowledge landscape (same as Levett & Guenov's phase 2). This stage helps to identify the deficiencies in knowledge and KM practices
- Plan organisation's KM priorities, focus and strategy. A strategy is always necessary to guide the KM programme.
- Identify KM benefits. The benefits of KM to the organisation must be known as these would help employees understand the need to implement KM. Benefits can be both short and long term.
- Adjust KM priorities as resources are not always available to carry out all necessary KM activities at once.
- Create KM–related incentive programmes. These programmes would help to sustain KM.

Wiig emphasises the importance of taking into account the organisation's goals, capabilities, condition and environment before introducing KM. Like Levett &Guenov, he mentions the need for a strategy to direct KM programmes as well as the need to sustain the programmes. His model shows how much planning and effort is required to make KM work.

Model by Skyrme

Skyrme (1999) identifies two main approaches to implementing KM viz: Better sharing of existing knowledge; creating new knowledge and converting it into valuable products, services and processes. Sharing of existing knowledge helps employees to avoid reinventing the wheel (i.e. they might be struggling to find means of completing tasks, which have been carried out successfully elsewhere within the organisation). In this case, codification of knowledge, documentation of best practices, lessons learned, expertise directories etc. are the focus of KM.

Creating new knowledge involves finding ways of performing the same tasks efficiently and effectively. It can be observed that these two approaches concur with Wiig's notion of integrating knowledge management activities into organisational activities.

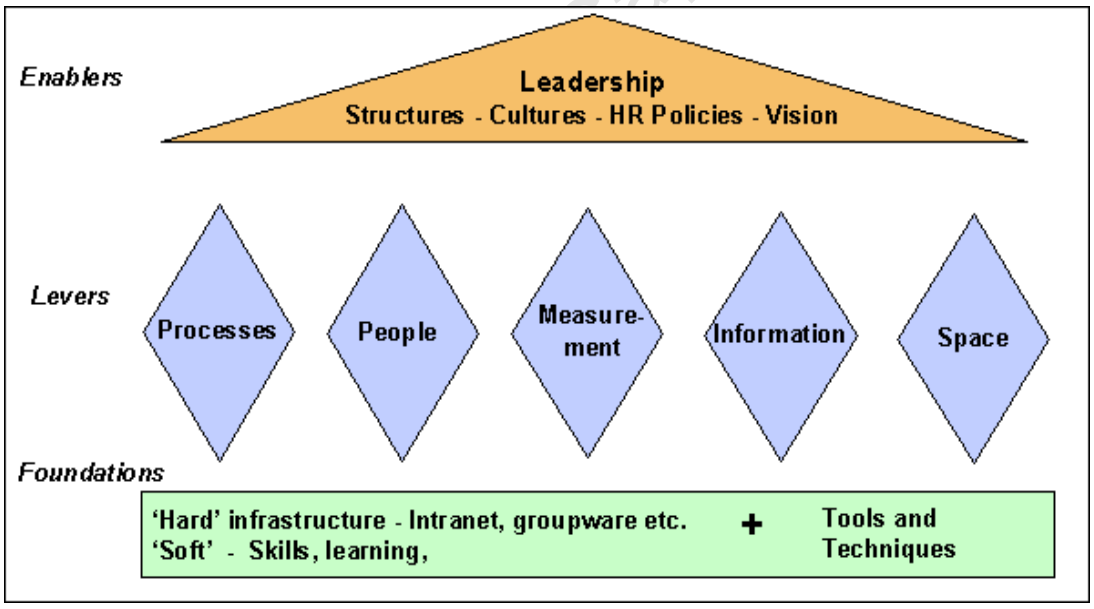
To make KM work in an organisation, Skyrme (1999) proposes that organisations should focus on the following knowledge levers:

- Customer knowledge – various sources of customer knowledge should be integrated.
- Knowledge in processes – codification of knowledge embedded in processes.
- Knowledge in people – creating an environment and culture in which people are willing to share their knowledge. Motivate those who have unique knowledge to perform, support their development, and reinforce knowledge sharing (e.g. including knowledge contribution as part of employee performance and salary appraisal).
- Organisational memory – capturing knowledge from everyday work and assignments; after action reviews, decision diaries are useful.

- Knowledge in relationships – For example knowledge between two people who have worked together for a long time; such knowledge should be captured if possible, and appropriate forums that would encourage such relationships should be developed.
- Knowledge assets – monitor the four categories of intellectual capital: human capital; customer capital; structural capital (databases, processes, infrastructure); intellectual property (brand value, designs, copyrights)

It is important however that the selected levers are relevant to the organisation's needs and that they are part of the strategy to be implemented. Figure 4.4 summarises the model by Skyrme

Figure 4.4: Skyrme's model of implementing knowledge management



Source: Skyrme (1999)

Like Wiig's model, Skyrme includes in his model leadership of the organisation and the knowledge management programme as enablers. Sponsorship from top management would help to steer the KM programme in the right direction and would ensure sustainability of the programme. Top management has influence on policies and is responsible for creating a

vision that would embrace KM for the organisation. Also the leadership of the KM programme must be committed to make KM work.

Apart from an enabling leadership, there is need for a sound strategy – exactly as the other two models propose. Skyrme's strategy however focuses on the knowledge levers he has identified. The final phase of Skyrme's model outlines the infrastructure that is required to support KM activities in any organisation. Such an infrastructure would consist of, for example, an Intranet and training of employees to develop the necessary skills. If all three phases are taken into consideration, the implementation of KM in an organisation can be effective.

Although the three models are different, it is clear that certain common elements surface in all three that should be considered when implementing knowledge management. Having examined the models the researcher has concluded that there are certain major steps that should be taken when implement knowledge management - these are outlined in the following section.

4.2.3 Steps in implementing KM

The implementation process can be considered to consist of five main steps namely:

- Obtaining management buy-in - This involves getting management to be committed to sponsoring the knowledge management programme.
- Conducting a knowledge audit- an audit will assist in determining the knowledge health of the organisation and developing an appropriate strategy.
- Developing the KM strategy – This will involve identifying and prioritising KM activities; aligning the activities with organisational goals.

- Implementing the KM strategy – This step will involve employing the strategy developed from the knowledge audit; integrating KM activities with organisational activities.

- Evaluation of the KM programme – After a given period, for example a year, the KM programme can be evaluated using appropriate metrics that focus on particular KM activities.

Implementing knowledge management should involve consideration of leadership of the programme, leadership of the organisation, infrastructure and sustainability of the programme. By obtaining management support the programme is likely to be sustained and integrated with the organisation's practices. In addition, conducting a knowledge audit helps in developing an appropriate strategy, which ensures that KM objectives support organisational objectives. Aligning KM objectives with organisational objectives will help the KM activities to be integrated with existing tasks. Developing a sound strategy thus is an important step if KM is to be implemented successfully. In addition, evaluation of the KM programme is necessary for continuous improvement of KM activities and therefore individual and organisational performance.

An important aspect in KM implementation that has hitherto not been discussed, is the change that KM brings to an organisation and the impact that such change has on the organisation. This cannot be overlooked as the management of such change plays an important role in determining the success of KM implementation. In the following section, the process of managing change is discussed.

4.3 Change management

Introducing knowledge management (KM) to an organisation means changing the way people think and do things to enable them to contribute intelligently towards the achievement

of the organisation's goals. Although KM is beneficial to organisations, the fact that it brings change implies that introducing it is likely to meet resistance because any attempt to change the way people do things usually meets some resistance. There is always a need to ensure the successful and seamless management of the change resulting from implementing KM. Change management therefore is inevitable where knowledge management is implemented. In this section, change management and its importance in knowledge management will be defined. Some of the models of change management as proposed by experts in management, as well as the role of a change agent will be highlighted.

4.3.1 What is change management?

Change can be a result of external or internal forces or both. External forces of change may include social, political, economic or technological. Internal forces include the need to improve production of an organisation (Curzon, 2006: 4). Jones (2010: 292) defines organisational change as "the process by which organisations move from their present state to some desired future state to increase their effectiveness". The generic aim of change is to find new and better methods of utilising resources to create value and improve performance of an organisation. To organisations whose performance is declining, change is an inevitable necessity. Likewise, organisations that are already performing well constantly need to consider better ways of conducting their business if they are to remain relevant (Jones, 2010: 292). Jones further asserts that change can be either evolutionary i.e. gradual, incremental, and specifically focused or revolutionary i.e. sudden, drastic and organisation – wide.

Although change is known to be either revolutionary or evolutionary it is always a tough task to ensure that it takes place effectively. In summary, change management is the process of ensuring that individuals in an organisation adapt new ideas and methods of carrying out activities successfully.

4.3.2 Models of implementing change

There are different models that have been developed to guide the process of change. Some of the models are specific to particular environments while others are generic. The following steps as outlined by Mento et al. (2002) can be regarded as generic and therefore applicable to different environments:

- Defining the idea and its context – This involves highlighting what needs to be changed and the reason for introducing change. Change is usually a result of the need to fill the gap between the desired and the present situation.
- Defining the change initiative – It is necessary to define the roles of key players in the change initiative. The key players include strategists, implementers and recipients. Strategists are the initiators, implementers are the ones who do the actual work of implanting change and recipients are a majority of the people who would be required to adapt to the change. In case of products the end user is also a recipient.
- Evaluate the climate for change – This requires obtaining an understanding of the organisational environment, its strengths and weaknesses that would assist in creating the necessary change activities. Furthermore, it involves studying the organisation's history of change to help identify problems that are likely to be encountered and therefore plan to deal with them accordingly. Identify ways to prioritise, focus and align efforts to obtain support for change from within the organisation.
- Develop a change plan – The plan should provide objectives for change and clearly indicate responsibilities for strategists, implementers and recipients. Also, the plan must be tailored to the frame of reference of individual participants as the change will affect individuals at different levels.

- Find and cultivate a sponsor – identify an individual in a top position who can support and be committed to change. S/he should also be sufficiently influential to help overcome resistance.
- Prepare the target audience, the recipients of change – communicate with the target audience to identify their position as regards to change. Identify possibilities of resistance and deal with them accordingly. Change is not possible unless the recipients accept it.
- Create the cultural fit – making the change last – Change must be integrated in the existing culture. The change should strategically be in line with organisational goals and culture in order for change to last.
- Develop and choose a change leader team – a team is better than an individual. It can be made up of a number of different but required competencies. An effective team therefore should be committed, competent and have a common purpose.
- Create small wins for motivation – Plan for and create visible performance improvements. Furthermore, recognise individuals who contribute to the improvements to motivate them and to stimulate others to follow.
- Constantly and strategically communicate the change – Communicating, involving people and being transparent are necessary for effective change. These should be done throughout implementing change. Communication would help to increase understanding among employees and recipients, reduce confusion and resistance and prepare employees for both positive and negative effects of change. However, communication should be tailored to the frame of reference of individuals at different levels.

- Measure progress of the change effort – use metrics to assess the programme. Identify milestones and benchmarks. It is important to concentrate on tangible and measurable results.
- Integrate lessons learned – generate a set of lessons learned through reflection for example by implementing After Action Reviews (AAR). Trigger questions can be used in the process.

Lewin's model is also more generic and involves three major steps of unfreezing, transition and refreezing. As outlined by Changing minds (2008) the first stage of unfreeze requires considerable effort for people to change as the tendency is that they attach their identity to the environment they are in and are probably comfortable in the state they are. They are thus regarded to be in a frozen state, which requires unfreezing to get them moving.

The second stage of change implies the actual transition and is a process, which may take time as people often go through several phases of misunderstandings before accepting change. Usually it is the first step towards change that is tricky even when people are unfrozen and ready for change.

The third stage is to get people established in the new environment (refreeze). However, in modern organizations this stage is usually temporary as the environment is continuously changing. Usually a state where freezing is actually not achieved is encouraged to ensure that people are ready for forthcoming changes. The disadvantage however is that such a state creates uncertainty and therefore inefficiency. Active management of change is required to ensure that the people remain in the new state (Jones, 2010: 311). This could involve continuous monitoring of change and re-enforcing change activities.

The models discussed are very useful in implementing change but effective implementation requires an awareness and understanding of the barriers to change. These include:

- Changes in external conditions
- Lack of commitment in implementation- as a result of dissatisfaction in one's progress, lack of support, scepticism influenced by past failures.
- Resistance of people involved
- Lack of resources (Recklies, 2001)

Among the barriers outlined, resistance is of interest to this dissertation as it has attracted much debate and is usually considered a major barrier (Self, 2007: 11).

4.3.3 Resistance to change

Just as change occurs at different levels in an organisation, resistance to change also occurs at different levels and these include organisational, group and individual levels. Jones (2010: 299) asserts that organisational level resistance to change occurs when change is likely to benefit some people, functions or departments at the expense of others. In addition, differences in functional orientation of people or departments make it difficult for all the people to perceive the need to change as necessary for the whole organisation. Furthermore, a mechanistic structure as opposed to an organic structure is a source of resistance. A mechanistic structure is hierarchical and has a centralised decision making system, and it shapes the behaviour of employees to be controlled by rules and procedures. An organic structure is flat and decentralised and relies on mutual adjustment of employees in carrying out duties. The structure thus creates an environment where individuals are creative and able to find solutions to new problems. Organisational culture is also another source of resistance. Any attempt to change the norms and values within an organisation is likely to meet resistance (Jones, 2010: 299).

At group level resistance to change may be a result of group norms which when changed would affect the expectations and relationships between individuals in the group. In addition,

group cohesiveness may cause inertia where group members unite to preserve the present status of the group. Furthermore, 'groupthink', which often is faulty, unanimous decision-making, makes it difficult to bring change to groups (Jones, 2010: 299).

Individually, employees would resist change when they feel uncertain and insecure about the outcome of change. As Waddell and Sohal (1998: 545) put it, people do not resist change as such but the uncertainties and potential outcomes of change. The tendency is that people have idiosyncratic perceptions that are consistent to individuals' existing views of their organisation. Individuals therefore focus on how change would affect them personally and resist when they perceive few benefits. In addition, habits are a source of resistance to change because people usually return to their old habits (Jones, 2010: 299).

Although resistance to change may be perceived as negative to change efforts as highlighted by Jones (2010), Waddell and Sohal (1998) consider resistance as a constructive tool for change. They say it helps to maintain stability and therefore predictability and control of an organisation are possible (Waddell and Sohal, 1998: 545). Furthermore, resistance is a method of communication. It brings attention to aspects of change that are inappropriate or wrong, and thus enables implementers to address the potential obstacles. It also injects energy into the change process by motivating people to consider seriously the changes that are to be implemented. Resistance is a source of innovation and it initiates consideration of alternative methods of dealing with problems.

In the light of the benefits that resistance brings to the change process, Waddell and Sohal (1998: 547) suggest that management of resistance should take the approach that considers resistance as constructive rather than adverse to change. Communication and transparency when implementing change are crucial if change is to succeed. Although, resistance and all

its causes are important to consider, they are not the only factors that should be taken into account. The following section highlights some of the other factors that should be considered.

4.3.4 Other factors to consider when implementing change

Sirkin, Keenan and Jackson (2005: 4) outline four factors that should be considered when implementing change. These are:

- Duration - complex and long projects should be reviewed every two weeks while short and straight forward projects may be reviewed after every six to eight weeks. The time between reviews is more important than the span of the project. Review of milestones helps to evaluate whether a project is making headway or not.
- Integrity - find people with the necessary skills for the job. For example: problem solvers, results oriented,etc.
- Commitment - support from leadership is required for influencing commitment in other members of the organisation. It is important to communicate to employees why change is necessary even if it means one on one dialogue. However the messages should be clear and consistent.
- Effort - change should not (at least it should not be perceived to) add on to existing workload. If there are any increases they should not exceed 10% and if more it would be advisable to outsource or employ temporary workers to accommodate excess workload.

Assessment of these elements helps to identify problem areas before implementing a change process. The assessment can also be done after a change initiative has been implemented to evaluate the initiative and identify problem areas. When implementing change, change agents should therefore be systematic in their approach.

4.3.5 Change management and knowledge management

Change management and knowledge management are closely linked. In fact, introducing knowledge management to an organisation is introducing change to the way people think and do things. Therefore, change management principles should be employed when implementing KM.

Platt (2004) argues that all aspects of change management are present in KM and that implementers of the latter can learn from the former. For example, there is need to communicate the purpose of change to the people affected as much as there is need to communicate the need to implement knowledge management. Furthermore, change management requires that change is maintained as much as knowledge management requires that KM activities are integrated in an organisation's activities. In addition, both change and knowledge management require project management skills.

Furthermore, change can be considered a process of knowledge generation (Balogun & Jenkins, 2003: 247). Balogun and Jenkins (2003: 247) argue informal behaviour in an organisation is based on shared assumptions and beliefs, which are tacit knowledge. They suggest that for successful change to occur the assumptions and beliefs have to evolve.

Change management is a process that requires monitoring and evaluation to ensure that change is effectively implemented. As introducing KM to an organisation is changing the way people think and do things, it is the same as introducing change. The desired situation is to make KM work and sustain the change introduced. Clearly, project management skills are necessary when implementing change and KM as both activities involve projects that support the organisational goals and objectives. It is therefore inevitable that those who lead change and KM in organisations have the necessary skills.

4.4 Conclusion

The aspects of implementing KM discussed in this section form the foundation for making KM work in organisations - without an understanding of these, it is impossible to implement KM effectively. Recognising and understanding the value of knowledge is necessary for organisations to work efficiently and effectively. By using appropriate knowledge effectively, individuals and organisations can act more intelligently. Organisations thus can be innovative and creative and do more things in a better way using as few resources as possible. In addition, individuals can make better and quicker decisions that save time and money.

It is therefore imperative that organisations make available the best knowledge to their employees to gain insight and assist them to effectively deal with competition and change. Only that knowledge which is useful for achieving organisational goals should be identified, acquired and organised to be used by all employees who need it.

Also important in the process of implementing KM is the will of knowledge workers to make KM work. Organisations should involve all knowledge workers in developing and implementing KM strategies to encourage ownership of KM programmes by the workers and thus give them impetus to make the programmes work. It is further important to note that support from top management and development of a knowledge culture are prerequisites for effective implementation of KM in an organisation.

Organisations should be able to demonstrate the value of KM by ensuring that KM objectives support organisational objectives. This is not possible without discovering what knowledge assets are available to an organisation, the needs of the organisation and a strategy for implementing KM.

CHAPTER FIVE

KM CRITICAL SUCCESS FACTORS

5.1 Introduction

The effectiveness of knowledge management initiatives is dependent on various factors, the most crucial of which are the organisational environment, motivation of employees, leadership, organisational culture, work processes, technology and KM measures (Khatibian, Pour and Jafari, 2010: 59 ; Skyrme, 2007). This section discusses these factors in detail and contends that they should constitute the core components of every KM maturity assessment exercise. It also discusses the model that was used in conducting the information and knowledge audit.

5.2 Motivation of employees

Motivation at work is a psychological concept that is based on the premise that employees are likely not to perform their duties well if they are not motivated. McShane and Von Glinow (2010: 132) define motivation as "the forces within a person that affect the direction, intensity, and persistence of voluntary behavior". In itself, motivation is neither behaviour nor performance but it concerns the internal and external forces that influence people's actions (Mackay, 2007: 21).

Motivation is either extrinsic, i.e. where the forces influencing a person are external, or intrinsic, i.e. where the forces are internal to a person. For example, if an individual is motivated to perform a particular task because of monetary or non-monetary rewards or avoiding punishment associated with completing a task successfully, the motivation is said to be extrinsic. If the individual is motivated by, the feeling of satisfaction when a task is completed then the motivation is intrinsic.

Motivation plays an important role in knowledge transfer. Cruc, Perez and Cantero (2009: 480) argue that knowledge transfer is a product of factors influenced by both extrinsic and intrinsic motivation. They say that on one-hand employees need to feel the acknowledgement of their knowledge sharing efforts by getting concrete rewards rather than mere membership or recognition. On the other hand, knowledge transfer is a product of factors beyond extrinsic motivation such as a pleasant work environment, mutual respect, and the possibility of having a sense of accomplishment and self-respect when employees have performed well and are involved with an organisation that has values similar to their own. It should, however, be noted that in a study that they conducted at a non-profit organisation, they found that intrinsic motivation played a more significant role in knowledge transfer than extrinsic motivation.

In their review of literature, Whittom and Roy (2009) argue that intrinsic motivation has a positive effect on tacit knowledge management in an organisation because it helps individuals to perform "complex or creative tasks". It is by being creative that employees are able to create new knowledge (largely tacit) that can be useful for improving an organisation's performance. Whittom and Roy (2009) therefore recommend that employees' intrinsic motivation to create and share knowledge should be cultivated by involving them in formulation of project objectives. This gives them the feeling of autonomy. They discourage the use of monetary rewards which may only encourage sharing of low value knowledge as individuals would aim at quantity rather than quality.

Hosoi (2005: 44) proposes some ways of motivating staff in academic libraries following Maslow's hierarchy of needs. He summarises them in the table below

Table5.1: Maslow's Hierarchy of Needs and Applications in Academic Libraries

Level	Needs	Examples in the Academic Library Workplace
1	Physiological	• Clean Air • Enough work space • Ergonomically-designed workstations • Appropriate lighting • Appropriate temperature • Convenient and reasonable foodservice facilities • Water fountains
2	Security	• Safe workplace • Stable wages and salaries • Job security • Health insurance • Retirement benefits
3	Social Affiliation	• Employee social activities • Teamwork • Friendship • Sense of belonging • Affection
4	Self-esteem	• Recognition • Awards • Prestige • Autonomy
5	Self-actualization	• Well-being of others • Accepting self • Meaningful work

Source: Hosoi (2005:44)

Deriving from the expectancy theory of motivation, Hosoi (2005: 45) suggests that appropriate training, clarifying expectations and providing guidance would help employees better understand the effort-performance relationship. He further contends that an employee's motivation may be undermined by the belief that rewards are only given to senior people in the organisation regardless of their performance. What is more, an employee is not motivated if the reward is not of value to him/her. He further argues that job design and enrichment have an impact on employees' motivation and performance. For example, he says jobs should be designed in a way that they require a variety of skills to complete; there is room for individuals to be innovative (autonomy) and there is feedback on employees' performance.

Hosoi suggests that to sustain motivation of employees, positive consequences (recognition and rewards) of employees' actions should be associated directly with the actions. This means that desired behaviour should be rewarded immediately and continuously to establish

the relationship between the behaviour and the consequences. Furthermore, rewards should be given repeatedly and distributed consistently to establish rewarding as a culture in an organisation (Hosoi, 2005: 47). He argues that although extrinsic motivation might not have total impact on an individual's performance, it is as necessary as intrinsic motivation because it helps to attract and retain the best people.

It is argued in this dissertation that intrinsic motivation plays a greater role than extrinsic motivation to encourage individuals to share and use knowledge. However, intrinsic motivation is a result of the need to satisfy other needs (as proposed by Maslow). Consideration of meeting the needs of employees therefore is necessary for improvement of individual's performance and that of the organisation. In implementing KM therefore, leaders should consider establishing a reward system that does not necessarily place emphasis on material or non-material rewards but on re-enforcing the behaviour of creating, sharing and using valuable knowledge. Consideration of improving motivation and commitment would enable designing a strategy that fits the needs of the organisation.

5.3 Leadership

As contended by Wiig (1999: 3-40) and Skyrme (1999) in their respective models of implementing knowledge management (cf. section 4.2.2) good leadership of an organisation is an important factor to ensure the successful implementation of KM. To avoid regurgitating what has already been alluded to, only the aspects that relate to an enabling leadership in KM are considered in this section.

According to McShane and Von Glinow (2010: 360), leadership is about "influencing, motivating and enabling others to contribute towards the effectiveness and success of an organisation…" They divided leadership into five perspectives that relate to competency, behavioural, contingency, transformational, and implicit factors. The competency perspective

suggests that leaders have the attributes of extroversion, positive self- concept, intrinsic motivation to pursue goals, integrity, the need for power to pursue organisational goals as opposed to personal gains, knowledge of the organisational business, cognitive ability to process information and ability to solve problems practically and emotional intelligence (McShane and Von Glinow, 2010: 361).

Jayasingam, Ansari and Jantam (2009: 145), in their research of 180 firms in Malaysia, found that leadership had a distinctive influence on knowledge management activities in organisations. They found that leaders with greater expert power and lesser legitimate power enhanced knowledge acquisition. Furthermore, leaders with greater expert power influenced knowledge dissemination practices and this had greater impact in smaller firms when coupled with rewards. Although they found that reward power on its own did not have significant impact on any KM practices, (this concurs with Whittom and Roy's (2009) results), they discovered that reward power had a positive effect on knowledge dissemination in smaller organisations. They also established that in smaller organisations, coercive power had a negative impact on knowledge management activities. Quoting Connelly and Kelloway (2003) and Migdadi (2009), they state that knowledge workers emulate the behaviour of knowledge sharing from leaders who have expertise.

Leaders in academic libraries should support knowledge management by employing various methods that are unique to the organisational set up. This requires that leaders have a vision and share that vision with knowledge workers. An example of such a leader as reported by Lackshman (2005) is Jack Welch who turned General Electric from an underperforming organisation to one of the most successful investments in the world. Lackshman compared Jack Welch's performance with other 36 Chief Executives on eight knowledge management components and found that Welch performed better than all the others did on five of the

components, indicating an above average performance. The components are: best practice transfer, job rotation, information technology, modifying organisation structure, organizing meetings/conferences, ongoing and continuous processes, participates in information sharing, and implement knowledge sharing. Without belabouring the point, academic library leaders have the capacity to influence and create an environment conducive for knowledge creation, sharing and use.

Although there are various leadership perspectives, it is argued that transformational leadership is the one required during implementation of KM in academic libraries. McShane and Von Glinow (2010: 371) describe transformational leadership as the process in which leaders lead change in organisations by conceiving, sharing and enacting a vision for the organisation and inspiring employees to strive for the vision. A strategic vision is necessary to give sense of purpose to any organisation. Leaders in academic libraries therefore should build and share a vision for the libraries with employees to enhance a common understanding of it. Furthermore, they should enact the vision. For example, if the vision is about improving the libraries' understanding of users' needs, then the leader should be on the forefront to find and implement means of collecting information and knowledge about users. Enacting the vision shows employees the significance of the vision and builds employee's trust in the leader (McShane and Von Glinow, 2010: 374)

5.4 Organisational culture

Organisational culture is yet another factor that determines the success of KM initiatives. It dictates how people perceive and respond to KM initiatives. For example in an organisation where there is a culture of "knowledge is power", individuals would be reluctant to share knowledge because they are afraid of losing their power base. Laydner, Alavi and Kayworth (2006) conducted research in two organisations to discover the impact of culture on KM.

They found that in one organisation (A) the culture was bureaucratic, individuals did not want to be noticed, they were afraid of being criticised if they shared their ideas and emphasis was on individual survival. The consequences were that when the leaders introduced an intranet-based information repository it was irregularly used and the project was a failure. Other initiatives started at departmental level that mainly targeted the creation of repositories also did not thrive. All this because individuals were reluctant to contribute information, own and maintain content, uncomfortable to use other people's ideas and reluctant to use tools that would encourage loss of touch with their customers (Laydner, Alavi and Kayworth (2006: 27). Simply put, they did not want to learn a new way of doing things because it was against the organisational culture.

In another organisation (B), even though the structure was hierarchical, the culture was collaborative and innovative, competition was undertaken in a cooperative manner, teamwork was highly regarded (more so than individual work) and individuals were given autonomy over their work. The results were that an organisational wide repository was established and used; team rooms were developed and used by project teams, communities of practice emerged. This was possible because team members actively coordinated in the team rooms, community members felt a sense of belonging, community members were committed to actively contributing content to the database, assignments were given through community references and community members were loyal to the company because they belonged to the community (Laydner, Alavi and Kayworth, 2006: 33). They concluded that:

- Organisational culture influences KM through its influence on the values organisational members attribute to individual versus cooperative behaviour
- Organisational culture influences the evolution of KM initiatives
- Organisational culture influences the migration of knowledge

- KM can become embedded in the organisational culture

These findings concur with findings by Zheng, Yang and McLean (2009) that organisational culture has a significant and direct impact on KM.

Another element of culture that is important in knowledge management is trust among employees. In their paper, Holste and Fields (2009: 135) reported that, on the one hand, trust based on mutual care and concern between workers directly influenced and motivated them to more willingly share tacit knowledge, while on the other hand trust based on co-workers' reliability and competence had greater impact on their use of tacit knowledge. These results are congruent with findings by Lucas (2005) who reported that trust between and reputation of the giver and recipient of knowledge determine the effectiveness of knowledge transfer and use.

Holste and Fields (2009: 135) argue that friendly personal relationships that arise from face-to face interactions and respect for another worker's competence is required for the sharing of tacit knowledge. They suggest that trust among employees can be improved by directly engaging co-workers in collaborative work that requires them to depend on one another as well as show individual competency. However, they advise that organisational leaders should determine the source of diminishing levels of trust among employees to select the appropriate solution.

5.5 Organisational structure

Organisational structure has been considered in knowledge management literature as an important factor that contributes to the success or failure of KM initiatives. It is advocated that firms should adopt organisational structures that allow the flow and sharing of knowledge. This section therefore, focuses on the role of the organisational structure in KM.

Claver-Cortes, Zaragoza-Saez and Pertusa-Ortega (2007), investigated the characteristics of organisational structures that support knowledge management in six firms. They found that a horizontal organisational structure with few hierarchical levels was present in five of the organisations with good KM programmes. A horizontal structure enhances communication, encourages decentralisation of decision-making and therefore empowers employees. In one organisation, which had a strong hierarchical structure, other means of encouraging individuals to interact and share knowledge were used - for example, they used work teams and project-based groups. Although they encourage the adoption of an organic, horizontal structure, they warn that certain aspects of a bureaucratic structure are still required to exercise control over organisations (Claver-Cortes, Zaragoza-Saez and Pertusa-Ortega, 2007: 55).

These results are congruent with the findings by Chen and Huang (2007) who found that there is a strong link between organisational structure, social interaction and knowledge management i.e. an appropriate organisational structure would promote social interaction among workers, a prerequisite to knowledge sharing. Chen and Huang (2007: 114) therefore, suggested the design of a less formalized, more decentralised and more integrated organisational structure.

5.6 KM processes

The processes of creating, storing, sharing, using and re-using knowledge have variously been identified as being fundamental to good KM practice and necessary for organisations and individuals to act intelligently (Skyrme, 2007; Wiig, 1993). By engaging in these activities, organisations show that they are aware of the importance of tapping into the intangible assets of the organisations. In their SECI model (see section 3.2.2), Takeuchi and

Nonaka (2004) imply that KM processes are essential for utilisation of knowledge to the benefit of both the individual and the organisation.

In practical terms, the following activities, as summarised by Skyrme, indicate that a particular KM process is taking place:

Table5.2: KM processes & constituent activities

Creating and Discovering	Creativity Techniques Data Mining Text Mining Environmental Scanning Knowledge Elicitation Business Simulation Content Analysis
Sharing and Learning	Communities of Practice Learning Networks Sharing Best Practice After Action Reviews Structured Dialogue Share Fairs Cross Functional Teams Decision Diaries
Organizing and Managing	Knowledge Centres Expertise Profiling Knowledge Mapping Information Audits/Inventory IRM (Information Resources Management) Measuring Intellectual Capital

Source: Skyrme (2007), KM basics at http://www.skyrme.com/resource/kmbasics.htm

In an organisation where KM is being implemented for the first time, some of these activities are likely to be carried out without employees knowing that they are making use of available knowledge. There is therefore need to increase awareness among employees so that the use of valuable knowledge is conscious rather than left to chance.

5.7 Technology

Technology in this dissertation refers to computer-based technology. Computer-based technology has been regarded as an enabler to KM and used successfully for that purpose by many firms as has been demonstrated by the numerous examples reported in the literature.

Holsapple (2005: 48) argues that the use of technology is important for successful implementation of knowledge management. Although Mohamed, Stankosky and Murray (2006: 104) concur with Holsapple, they further contend that technology can improve knowledge management activities only if properly used. They thus warn that technology should be part of a balanced and integrated set of components because on its own it cannot make a KM initiative successful. They highlight the shortcomings of technology as follows

- It does not and may not offer the absolute cognitive dimension that is exercised by the human brain. It cannot learn to question the current practices in an organisation in order to effect change because such learning comes through the social processes of sharing knowledge and interests (Mohamed, Stankosky and Murray, 2006: 105). Transformational leadership discussed in section 1.2 can facilitate this type of learning.
- It does not have the capability to react quickly and effectively to the changes in the external environment.
- It is based on binary logic in which everything is expressed as either zero or one. In KM however, there is a knowledge continuum and not just two extremes.

Mohamed, Stankosky and Murray (2006: 109-111) suggest that technology can be used to improve communication and interaction among employees with similar interests, manage content and measure KM initiative performance. Establishment and use of virtual communities can help to overcome the distance barrier between employees as well as between employees and their organisations. In content management, technology is useful for organising and managing digital content and therefore facilitates instantaneous knowledge sharing and content delivery. In measuring KM initiative performance, technology can be used to determine the use of knowledge content by employees and clients.

Citing Van Den Brink (2003), Revilla, Rodriguez-Prado and Prieto (2009: 350) divided information technology (IT) into the categories of convergent and divergent technologies. Convergent IT includes tools such as groupware, social media, e-mail, video conferencing systems, amongst others, that connect people to people while divergent IT constitutes tools that connect people to explicit knowledge, for instance decision support systems, the Internet and Intranets. In their study on the impact of technology on KM in product development, Revilla, Rodriguez-Prado and Prieto (2009: 358) however found that neither convergent nor divergent technologies had an impact on the creative processes of the product development team. The results of the study further revealed that the balanced use of these two categories of technology did have an effect on knowledge exploitation, i.e. that which involves bringing efficiency to a task. These results concur with the limitations of technology put forward by Mohamed, Stankosky and Murray (2006). Revilla, Rodriguez-Prado and Prieto (2009: 360) advise that the use of convergent IT should never replace live interaction among employees, which they regard as the most successful means of transferring tacit knowledge.

Based on the discussion in this section, it is argued that the use of technology for KM in academic libraries should be regarded as a means to an end. Technology in itself will never produce the desired results in KM. This does not mean that technology should be abandoned completely but that it should be integrated with other methods of enhancing KM. The use of technology thus requires careful consideration of the situation in hand and the choice of appropriate tools.

5.8 KM measures

As with any programme in an organisation, KM should be measured as failure to do so means failure to account for resources invested in it (Rumizen, 2002: 207). Bearing in mind that KM programmes should be measured for a particular purpose, it is necessary to highlight the most

important reasons why KM should be measured. These, according to Rumizen (2002: 208), are:

- To determine return on investment for knowledge management projects
- To identify barriers to knowledge sharing
- To establish the maturity level of knowledge management initiatives
- To determine efficiency of approaches used in implementing KM
- To find out progress in achieving goals by means of KM
- To find out employees' opinions about KM
- To assess an organisation's intangible assets

This means that KM measurement should be systematic. It therefore requires strategic thinking and an understanding of how to develop measures that would produce the required outcome. As with other evaluation endeavours, KM measurement is not a simple task. The nature of knowledge makes measurement of knowledge work and hence KM initiatives difficult. Iftikhar (2003: 57) argues that KM is difficult to measure because of its complex, muti-dimensional and process orientated nature. Concurring with Iftikhar, Larkey and Austin (2007: 280) suggest that knowledge work is difficult to measure because it is difficult to observe, the motivation of knowledge workers is more intrinsic than extrinsic and it largely depends on an individual's capability. Although knowledge work and hence KM is regarded as being difficult to measure, numerous authors have developed and successfully used various measuring methods.

Hellstrom and Jacob (2003: 56) contend that the establishment of performance measures and evaluation, which help to determine the success or failure of a given programme, is possible if there are clearly stated goals. They divide KM evaluation into outcome-oriented measures, which focus on the final product and process oriented measures, which focus on monitoring

the processes. Outcome-oriented measures therefore are concerned with Return on Investment for example, and can include methods such as the Intangible Asset Monitor and Balanced Scorecard, amongst others, which link various metrics to financial factors. Process-oriented measures focus on measuring whether knowledge workers are achieving certain goals. It makes use of certain activities as evidence that a particular goal is achieved, for example the re-use rate of knowledge which is frequently accessed would indicate that knowledge collected is being used to add value to an organisation. Rumizen (2002: 209) asserts that KM measures should comprise a balance of leading and lagging indicators. A leading indicator predicts the possible outcome while a lagging indicator shows the actual outcome. Like Hellstrom and Jacob (2003), Rumizen (2002: 249) suggests the use of the Balanced Scorecard, the Intellectual Asset Monitor, Skandia Navigator and Intellectual Capital Index to measure KM. It is important to note that every organisation should select a measuring method that is appropriate to their focus of KM.

5.9 A model for KM maturity assessment

Based on the critical success factors, a model for assessing an organisation's knowledge health was proposed and used in the research project. It builds not only on the success factors but also on the models of implementing KM discussed in chapter 4.

Figure 5.1a: KM maturity assessment model

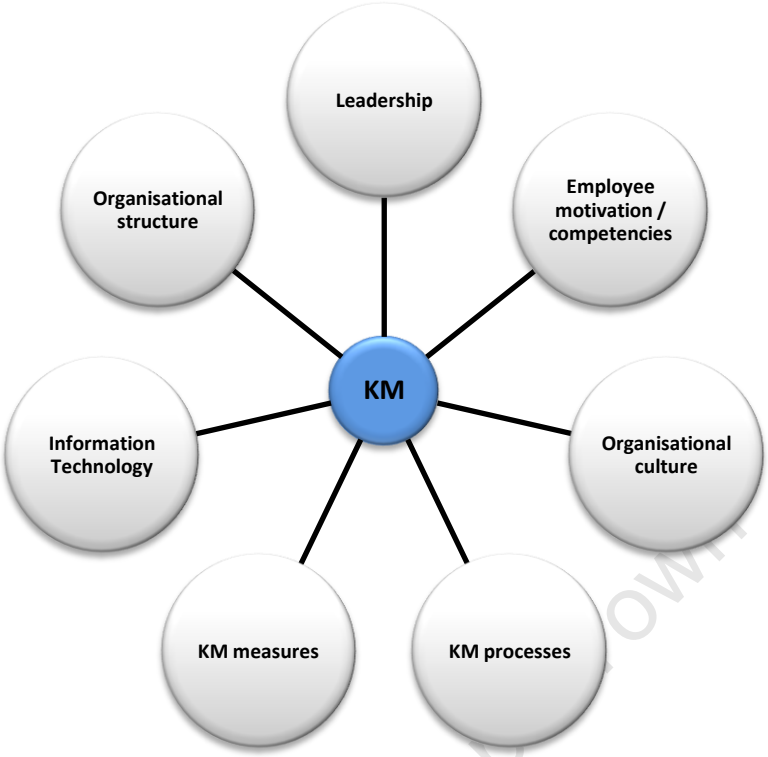
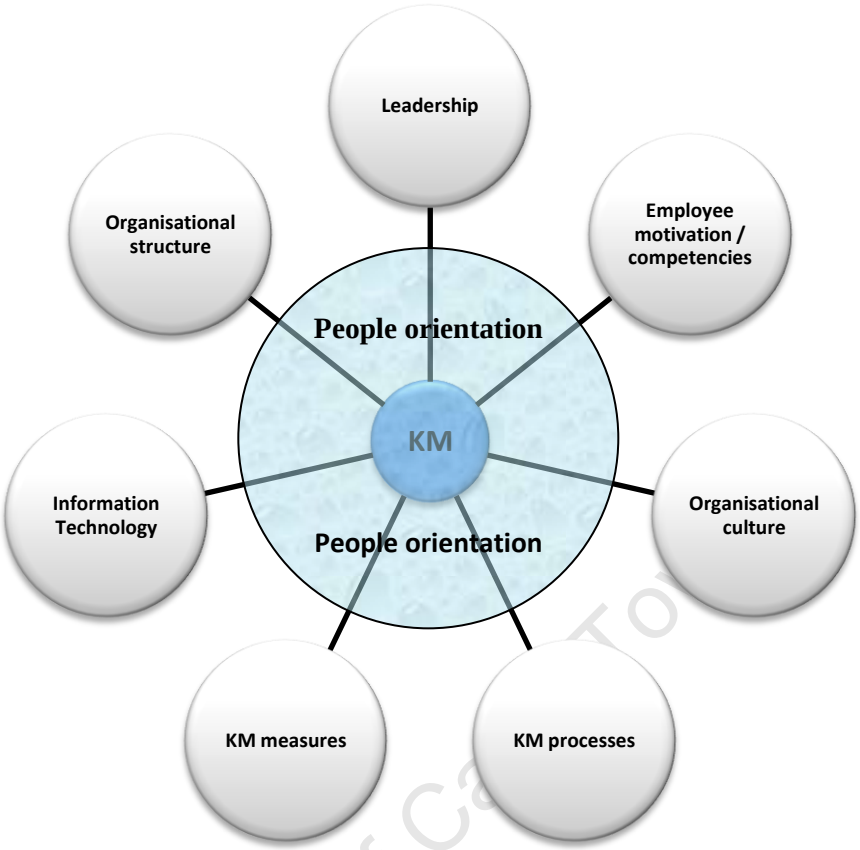


Figure 5.1a shows that all the facets of leadership, employee motivation and competencies, organisational culture, KM processes, KM measures and Information technology are equally important for a successful KM initiative. Like a bicycle wheel, which moves smoothly if all spokes are in place so is KM if all these facets are in place. It is argued that in any organisational environment KM should be the hub of organisational activities and be integrated with various aspects of the organisation. As KM is about people, KM initiatives should be people centred. The model therefore can be developed further to depict this aspect as follows:

Figure 5.1b: KM maturity assessment model, extended



Leadership of the organisation should have enough knowledge about KM and believe in it. It is when leadership believes in KM that they will amongst others, incorporate KM in the vision of the organisation, performance measurement, reward systems and organisational structure.

As previously discussed, a less formalised organisational structure is desirable in an organisation that puts KM at the core of its activities. Although by design, the structure could be hierarchical and largely bureaucratic, top management can create a less formalised sub-structure within such a formal configuration. This can be done by improving working relationships with all the employees, involving subordinates in important matters concerning the organisation, etc.

Top management can also play an important role in influencing the culture of the organisation. By showing commitment to principles of knowledge sharing and employee involvement, top management can instil the same spirit in employees. Organisational culture thus depends on what kind of behaviour is encouraged and reinforced by top management. If knowledge creation, collection, storage and use are encouraged and reinforced, then it is likely to develop into the culture of the entire organisation.

This means that KM activities should be observable and measurable. Although it is difficult to measure some KM processes like knowledge sharing, most of which is informal, it is still possible to measure the processes by formulating achievable and measurable objectives that can act as indicators and provide evidence that these processes are taking place and are effective.

KM processes are enhanced if an effective information technology infrastructure is in place, e.g. by making available, amongst others, a good Intranet, workstation computers, shared drives, portals to web sites, databases, the Internet and social networking tools. Choosing the appropriate technology is crucial for the success of KM initiatives. For example, video conferencing tools may be feasible for groups of employees who should collaborate but are geographically widely dispersed, but on the other hand, they could be a waste of resources if employees are based on the same premises.

Though mentioned last, people motivation and competencies are as important as the other factors. Employees should be aware of KM and motivated to make it work. Furthermore, they should have the skills that are required to take part in the KM processes. For example, if a shared drive is used for information storage and sharing, employees should know how to use the facility. Employees should embrace KM as a way of acting intelligently and be willing to use KM in achieving organisational goals. This means that organisational goals should be

mapped to KM activities to ensure a clear link between the two. Furthermore, KM activities should be considered an integral part of employees' tasks.

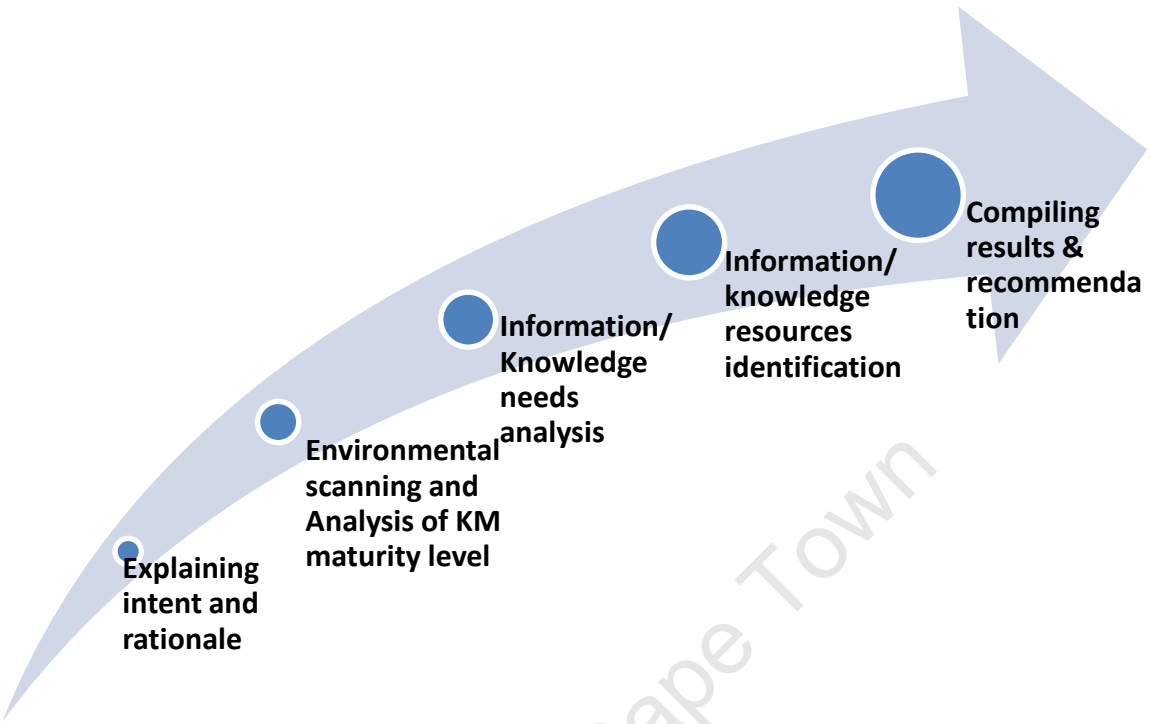
Figure 5.1b therefore, proposes an approach to KM that takes into consideration both the human and technological elements of KM. It is argued that each aspect of the model is strongly attached to the human element in an organisation as KM is about people. Rather than focussing on balancing the technology and human elements, KM should focus on what is required to make use of the intangible assets in an organisation to improve organisational performance.

5.10 A model for the information and knowledge audit

The models previously discussed highlight the main areas upon which an information and knowledge audit should concentrate (cf. sections 4.1.3 and 4.2.2). To reiterate, these are the environment in which knowledge management is to be implemented and which comprises of the organisational structure, the culture and the main objectives of the organisation; the availability of knowledge resources to those who need the knowledge; the flow of knowledge within the organisation.

The proposed KM audit model for the study will draw from all the models and will constitute the steps of meeting the target audience to explain the intent of the audit, conducting the environmental scan, identifying the knowledge resources, identifying the flow of knowledge, mapping the resources and the flows with the resources, compiling results and recommendations. The steps are summarised in figure 5.2

Figure 5.2: An information and knowledge audit model



5.10.1 Explaining intent and rationale

Explaining the aim and the need for the information and knowledge audit before commencing the audit exercise is necessary for soliciting support from management and all who are involved in the process. According to Wiig (1999), securing management support right from the start of a knowledge management programme is important for successful implementation of the programme. Furthermore, this step is important to ensure that all participants understand the purpose of the study. It also provides an opportunity to enlighten participants on the concept of KM and its place in the organisation – this is particularly relevant in the cases where participants are unfamiliar with KM.

5.10.2 Environmental scanning and analysis of the KM maturity level

The aim of this task is to collect evidence of KM activities in the organisation. It involves using appropriate tools to collect data that would help in sketching a picture of the strengths

and weaknesses in the organisation's knowledge landscape. Furthermore, it involves the analysis of how knowledge resources are used to achieve organisational objectives. Data collected are analysed to determine the strengths and weaknesses of the KM practices. The task also involves the analysis of how the existing infrastructure supports knowledge sharing and connection among individuals.

5.10.3 Information and knowledge needs analysis

This phase involves the analysis of the employees' information and knowledge needs. These include the kind of information and knowledge that they would require to perform their tasks better.

5.10.4 Knowledge resource identification

This phase involves knowledge stocktaking to identify and locate knowledge resources in the organisation. It involves counting and categorising both tacit and explicit knowledge resources. This includes identification of documents, databases, intranet websites, links and subscriptions to external resources; locations of information in the library; exploring how knowledge resources are organised for access; identifying the purpose, relevance and quality of knowledge resources; determining whether these are used and the frequency of use. It further involves collecting data on staff, identifying their expertise, their academic or professional qualifications, skill and competency levels; information and knowledge needs of staff; training and learning opportunities available to the staff; future leadership potentials among the staff.

5.10.5 Compiling the report

During this step, the library's strategic goals are considered in the light of existing knowledge assets to find out if the assets can be utilised to achieve the goals or if there is a need to acquire other knowledge. Furthermore, the levels of the Key Maturity Areas are considered to

identify priority activities for KM during implementation. Such consideration of the library's goals and KM activities ensures that the activities are integrated in the existing work of staff and not perceived as extra work. Furthermore, it involves formulation of the best possible means of leveraging the knowledge.

Wiig (1999) argues that planning the KM strategy serves the purpose of developing a framework that would reflect the KM vision and organisational objectives. Tiwana (2002) agrees with Wiig and says that a KM strategy should be aligned with the business strategy.

The results are compiled into a report to indicate the knowledge landscape of the library, which includes an analysis of strengths, weaknesses, opportunities and threats. In addition, the report should reflect the current knowledge management practices and activities, the knowledge needs of the staff, knowledge assets of the library, the gap between the existing knowledge and the needs, and recommendations of a strategy that could be adopted and implemented.

CHAPTER SIX

RESEARCH METHODOLOGY

6.1 Introduction

The study employed a KM maturity level assessment model to explore knowledge management (chapter 5) praxis in the Bunda College and KCN libraries. A case study approach with both qualitative and quantitative elements was adopted. The methodology that was used included data collection techniques that were based on recommendations made in the literature and which were discussed in chapters three and four. In addition, the environments in which the study was conducted influenced the choice of the data collection methods. The selection of appropriate data collection methods was crucial because of time limitations on the part of the researcher and the participants.

6.2 A case study approach

Although case study research is generally characterised by the emphasis placed on a single unit as the object of study, it is possible to investigate multiple units (Babbie and Mouton, 2003: 281). Cases can be individuals, groups, organisations, movements, events, or geographic units (Neuman, 2003: 33). For the purposes of this study, the definition of a case study by Yin (2003) was adopted. Yin (2003: 13) defines a case study as "an empirical enquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident". The researcher uses this method to cover contextual conditions that s/he believes to be important to the phenomenon under study (Yin, 2003: 13). As KM is largely influenced by the organisational environment (cf. chapter 4), it is necessary to take into consideration contextual conditions when implementing KM. This enables organisations to develop KM strategies that are appropriate to their environment. The approach was appropriate for the

project because its intended output is a practical and appropriate strategy to implement KM in the libraries under study. It was necessary to employ a comparative case study approach, as the results will provide an opportunity for the libraries to learn from each other in enhancing their KM efforts.

Yin (2003: 14) contends that the case study method is a comprehensive strategy, which entails the logic of design, data collection techniques and specific approaches to data analysis. It therefore relies on theoretical propositions that guide data collection and analysis. The research project drew from the literature to develop a framework (cf. chapter 5) that was used to develop the measuring instruments (cf. Appendix A). The measuring instruments were both qualitative and quantitative as Yin (2003: 17) argues that case studies can be based on evidence from both measures. Further distinction between quantitative and qualitative research approaches is discussed in section 6.3.

6.3 The information and knowledge audit process

As mentioned, the information and knowledge audit incorporated both qualitative and quantitative elements in the research design. Qualitative research methods are interpretive and usually follow a non-linear research path. In addition, they are concerned with soft data (impressions, symbols, words, sentences) and detailed examination of cases (Neuman, 2003: 139). The primary goal of qualitative research is to understand and describe rather than to explain and predict human behaviour (Babbie and Mouton, 2003: 53). It takes the social actor's perspective on social action (Babbie and Mouton, 2003: 270).

Quantitative research methods are concerned with hard data (figures) and measuring of variables and testing of hypothesis linked to general causes of phenomena (Neuman, 2003: 139). The emphasis is on quantifying the properties of phenomena (Babbie and Mouton, 2003: 49).

As indicated by the approaches to implementing KM (cf. chapter 4), it was argued that the audit could only be carried out effectively if two or more methods were used, also referred to as triangulation of method (Neuman, 2003:139). Triangulation of method helps to remove biases that would result from using only one method. As every method has its shortcomings, it is imperative to combine several methods to overcome the deficiencies.

Quantitative data was collected using a questionnaire and analysing secondary data sources. Quantitative data included the type of information and knowledge sources available to the libraries, the infrastructure that is in place to support knowledge creation and sharing activities, the number of employees in the libraries and their qualifications and positions, and the organisational structures of the libraries. Qualitative data was collected using face-to-face interviews guided by an interview schedule. The interviews helped to elicit ideas from individuals about their perception of sharing knowledge and skills, and personal development. Furthermore, it was hoped that the interviews would reveal the knowledge culture that exists within the libraries.

6.3.1 Population and Sample

The sample population was made up of seventeen employees, eleven from Bunda College library and six from KCN library. Non-probability sampling methods were used to obtain the sample because participants were selected based on the nature of their work in the library, their ability to respond to questions and their qualification. Only those with a certificate in library and information science or above were requested to participate. Participants for the face to face in-depth interviews were selected based on their availability.

According to Babbie and Mouton (2003: 166), purposive sampling is based on the researcher's knowledge of the population, its elements and the research objectives. Referring

to this method as handpicked sampling, O'leary (2004) describes it as involving the selection of cases that meet particular criteria.

6.3.2 Explaining intent and rationale

The aim of explaining intent and rationale of the information and knowledge audit was to obtain support from management and potential participants of the audit. Other aspects detailing why this step is important are outlined in section 5.10.1. In liaison with the college librarians in both libraries, meetings with the study participants were scheduled. At the meetings, KM and its subsequent benefits to the libraries were presented and discussed. The main benefits of KM that were discussed include:

- Creating an environment that would support innovation among staff. It would help to bring out the best there is in the staff to improve the library standards;
- identifying difficulties that library staff face because they lack or cannot access certain knowledge;
- Devising means of capturing the valuable knowledge that library staff has so that the effects of their change of position or jobs may be reduced when this happens.

The status of the library services was highlighted as a factor that needs to be improved to meet the requirements of users in the digital age as well as the trends and standards in library services.

6.3.3 Data Collection

As mentioned, data was collected by means of a questionnaire and face-to-face interviews. The two methods were used in combination to ensure reliability and validity of the data collected (cf. section 6.2). For instance, the interviews helped to establish respondents' actual views and in greater depth than what could be established by means of the questionnaires.

Furthermore, responses that were not clear in the questionnaire were further elucidated during the interviews.

6.3.3.1 Self-administered Questionnaire

Self-administered questionnaires are a method of collecting data in which respondents are asked to complete the questionnaires themselves in a supervised or unsupervised setting (Bourque, 2004: 1030). They are appropriate for a population that is adequately literate (Babbie & Mouton, 2003: 258). The population under study comprised of individuals whose minimum qualification is a post-secondary school certificate and therefore they were considered capable of responding on their own. Due to time limitations on both the researcher's and the respondents' part, the questionnaires were completed without supervision.

According to Koponen and Tolonen (2010), self-administered questionnaires ensure that the interviewer does not interfere with the process of gathering data and they provide more privacy for the respondents. However, the possibility of high levels of missing data is prevalent because the respondents are not always sure how to respond, especially in an unsupervised setting. Furthermore, the researcher does not have control over who completes the questionnaire or whether the respondent consults with others when completing it (Bourque, 2004: 1030). The researcher used the method bearing in mind both its strengths and weaknesses. To mitigate the weaknesses, face-to-face interviews were scheduled to follow the self-administered questionnaire.

The questionnaire was designed to contain mostly closed-ended questions and only a few open-ended ones. This was to ensure that respondents completed most of the questions and that the return rate was high. Extensive use of open-ended questions in self-administered questionnaire usually results in a poor return rate and missing or irrelevant information in the

responses given (Bourque, 2004: 1030). As suggested by Babbie and Mouton (2003: 233), a certain number of open-ended questions were included to capture to some degree personal opinions and views.

Before implementing the questionnaire, it was tested to identify ambiguities and errors in the questions. Using the criteria in section 6.3, five people from the Chancellor College library, a constituent library of the University of Malawi, were asked to answer the questionnaire. Three out of the five questionnaires were answered and returned, representing a response rate of 60%. The pilot study identified a need to provide the participants with background information to knowledge management. This was subsequently incorporated when the researcher explained the intent and rationale to the participants. The bulk of the questionnaires (fifteen) were distributed in person at the work places of the respondents and collected after three days. Two of the questionnaires were, however, sent and collected by e-mail, as the respondents were not at their work places during the time of the study. Ten out of the eleven people from Bunda College library returned completed questionnaires while all six respondents from KCN library returned the questionnaires. In total, sixteen out of seventeen people returned the questionnaires representing a 94 percent return rate.

6.3.3.2 Face-to-face interviews

Face-to-face interviews entail structured conversations, between the interviewer and the interviewee, based on a pre-determined set of questions (Babbie & Mouton, 2003: 249). Unlike unsupervised self-administered questionnaires, face-to-face interviews provide the researcher with assurance that the intended respondents understand and answer the questions. The interview method provides the best way to clarify ambiguities in questions and responses as any misunderstandings are corrected immediately. In this study, they were used to verify responses and to obtain further information on issues raised in the questionnaire study. A set

of questions therefore, was derived from the responses that respondents gave during the questionnaire study.

Eleven people, six from Bunda College library and five from KCN library were interviewed. The interviewees were selected from respondents in the questionnaire study. In addition to indicating the possibility of interviewing the questionnaire respondents on the questionnaire, the researcher asked the respondents individually to take part in the interviews. Venues for the interviews were arranged in both libraries to minimise disturbances during the interview process. To ensure that all the proceedings of the discussions were captured, an audio digital recorder was used with the consent of the participants. Where possible, notes were taken to complement the recorded information. On average, each interview session was 30 minutes long.

6.3.4 Data analysis

Data from the questionnaire were analysed using tables, charts and simple descriptive statistics. Tables and simple statistics are useful for categorising different information sources and mapping knowledge flows. Scores on the aspects of KM that were measured were added to determine the total score of libraries on a particular aspect.

Data from the face-to-face interviews were transcribed and categorised according to predetermined themes. The themes were based on the model proposed in chapter 5. To determine the KM maturity levels in the libraries, a table summarising general KM maturity levels proposed by Kulkarni and St. Louis (2003) was used.

Table6.1: General Maturity Levels

Maturity level	Goals	
	Perceptual assessment	**Infrastructure assessment**
Level-1: Possible	Not discouraged; there is a general willingness to share; some people who understand the value of it, do it.	Knowledge assets are identified.
Level-2: Encouraged	Value of knowledge assets is recognized by the organization; culture encourages all activities with respect to sharing of knowledge assets; sharing is recognized / rewarded.	Knowledge assets are stored in some fashion.
Level-3: Enabled/ Practiced	Sharing of knowledge assets is practiced; KM related activities are a required part of normal workflow.	Systematic mechanisms exist to enable activities with respect to KM; a centralized repository exists; taxonomy exists.
Level-4: Managed	Employees find it easy to share knowledge assets; employees expect to be successful in locating knowledge assets if they exist; tools for supporting KM activities are easy to use.	Training instruction is available for learning about KM systems usage; change management principles are used to introduce KM practices.
Level-5: Continuously Improved	Mechanisms and tools to leverage knowledge assets are widely accepted.	Intelligent tools exist; tools and mechanisms for sharing are periodically improved / updated; business processes that incorporate sharing of knowledge assets are periodically reviewed

Source: Kulkarni & St. Louise (2003:2544)

The table shows a progression from a lower level to a higher level i.e. the existence of level one activity is a requirement for activities at level two and indicates the possibility of the latter.

6.4 Conclusion

This chapter has discussed the methods that were used to capture and analyse data for the study. The questionnaire and face-to-face interviews were the two methods that were used to collect data. Tables and descriptive statistics formed the integral part of the analysis. In the following chapter a detailed account of results is given.

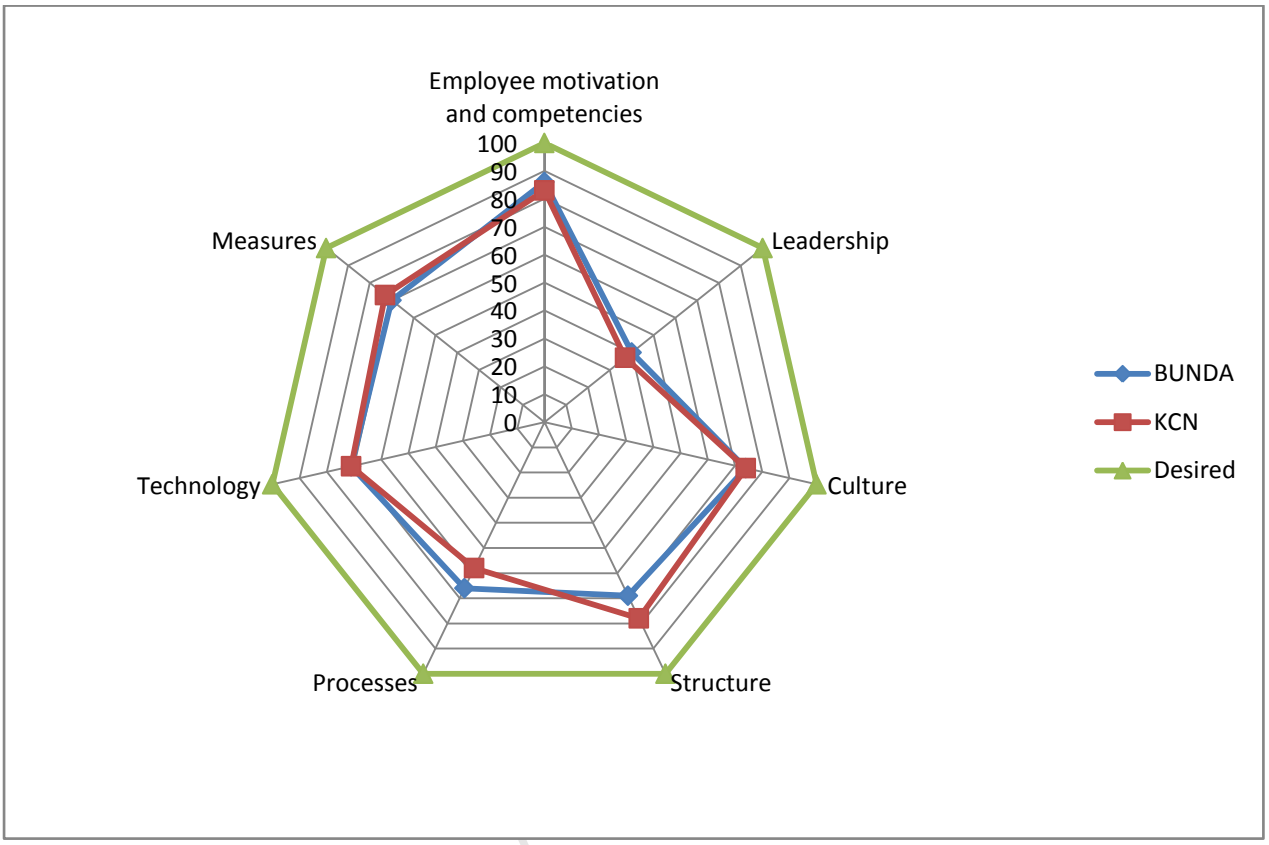
CHAPTER SEVEN

KM AT BUNDA COLLEGE AND KCN LIBRARIES: ANALYSIS OF THE RESULTS

7.1 Introduction

This chapter focuses on the results of the study. It discusses and compares various aspects of KM in the libraries under study, such as their KM maturity levels, information and knowledge needs and existing information and knowledge resources. To determine the levels of KM maturity the major factors that influence the success or failure of KM initiatives were investigated, i.e. the aspects of employee motivation and competencies, leadership, organisational culture, organisational structure, KM processes, technology and KM measures. Furthermore, information and knowledge sources, information, and knowledge needs were investigated because they provide insight regarding the best way to utilise available information and knowledge resources or acquire those that are not available. Figure 7.1 below summarises the analysis of the measurement of KM maturity levels in the libraries. The KM maturity scores were derived from the questionnaire responses (cf. section 6.3.4. A minimum score of 80% indicates that a particular aspect of KM is practised in the libraries.

Figure 7.1: KM Maturity in the Bunda College and KCN libraries



In the following sections, each aspect will be discussed in detail.

7.2 Employee motivation and competencies

This dimension focused on the respondents' understanding and motivation to contribute towards achieving the libraries' objectives. It therefore focussed on respondents' recognition of their contribution towards achieving library objectives, the perception of their value to the libraries, respondents' networking and communication activities (cf. Appendix A, questions 1-4; Appendix B, questions 1-3). The responses were coded to determine scores for the libraries and table 7.1 summarises the scores.

Table 7.1: Scores on employee motivation and competencies

Attribute	Score (%)	
	Bunda	KCN
Contribution towards achievement of library objectives	96	73.3
Perceived value	70	80
Networking	78	83.3
Communication	88	93.3
Overall score	**83**	**82.5**

Respondents indicated that they contributed towards the achievement of the goals of the library in many ways and illustrated this by mentioning the activities they do. In Bunda library some of the activities that were mentioned were: ensuring timely processing of information materials from the time they are acquired to the time they are made available to users; assisting users in finding information; conducting user education sessions and taking part in collection development. The library scored 96% (48 out of 50) on this attribute. In KCN library, the activities that were highlighted included conducting library user education sessions, assisting users with information searching, managing staff and budgeting. Two respondents however, did not provide any evidence of contributing towards achievement of library objectives. KCN library scored 73.3% (22 out of 30). This shows that most of the library employees were aware that they add some value to the libraries.

When asked whether they think the library values them, two respondents in Bunda library were not sure, six indicated that they were valued and two indicated that they were not valued. Those who mentioned that they were valued indicated reasons such as their absence being felt, being sent for training and being called to work when they are off as indicators that they were valued. Those who mentioned that they were not valued indicated that their perceptions were based on the fact that they were not promoted and that they were not sent for further training. This indicates that there might be an element of bias in recognising and

rewarding employees. While Bunda College library scored 70% (35 out of 50) on this aspect, KCN library scored 80% (24 out of 30). Respondents at the KCN library indicated that they were valued by the library, owing mainly to various responsibilities that they are given. For example, one respondent wrote, "I have responsibilities in database management and handling petty cash for the library". Another wrote, "I was involved in implementing the library's automated system".

Although extrinsic rewards may not have a direct bearing on individuals' willingness to share their knowledge (see section 5.2), individuals who feel less or not valued, would be intrinsically de-motivated and may not be willing to share their knowledge. In Bunda library therefore, the rewarding system would affect KM activities. In KCN library, there is good motivation to complete tasks as employees feel to be valued and take ownership of various assignments.

All respondents in Bunda and KCN libraries indicated that they belonged to at least one group for professional development. The common group to which all belonged was the Malawi Library Association (MALA). In addition to MALA, two respondents in Bunda library indicated that they belonged to IAALD, ICTAM and CILIP while one respondent in KCN library belonged to CILIP. On the aspect of 'networking for professional purposes' Bunda College library scored 78% (39 out of 50) while KCN scored 83.3% (25 out of 30).

With regard to communication in the libraries, respondents indicated that they communicated with different people for various reasons. In both Bunda and KCN libraries, some respondents indicated that they consulted fellow library assistants or the librarian depending on the information they required. However, the interview results indicated that in KCN library, respondents other than the librarian usually consulted the librarian first. KCN library was awarded a score of 93.3% (28 out of 30). In Bunda College library, three reported that

they consulted the chief library assistant first, the others indicated that they consulted one of the senior library assistants or the librarian first and one usually consulted the chief library assistant or the college librarian or the senior assistant librarian depending on the issue. The library scored 88% (44 out of 50).

The total aggregate score for the Employee motivation and competencies dimension for Bunda College and KCN libraries were 83% and 82.5% respectively. It is clear from the figures that there is no significant difference between the Bunda and KCN libraries regarding KM orientation towards people. However, even though the libraries' scores on this dimension are the highest of the seven dimensions, the libraries have not reached the expected level. They therefore need to improve on the aspect of motivation of employees to ensure that all employees feel that they are valued and that they understand their contribution towards achieving library objectives. The attribute of networking should also be developed as most of the respondents belong to only one group. Communication among employees at the same level should be improved in both libraries while communication between superiors and subordinates should be improved in Bunda College library.

7.3 Leadership

The leadership aspect contained the attributes of KM vision; Information and Knowledge creation, collection and use; and Information and Knowledge sharing (cf. Appendix A, questions 5-7; Appendix B, questions 4-6). Table 7.2 shows the scores.

Table 7.2: Scores on leadership

Attribute	**Score (%)**	
	Bunda	**KCN**
KM Vision	40	36.7
Support of I/K creation, collection and use	72	63
I/K sharing support	80	80
Overall score	**76**	**73**

The KM vision attribute focussed on the evidence of KM in the vision statement of the library i.e. determining whether the libraries supported the use of information and knowledge in their vision statements. The responses to the questionnaire suggested that Bunda library had a vision statement that supported KM. This is based on the seven respondents that indicated that it was available, while three respondents indicated that it was not. During the interviews it was, however, established that the library did not have a clearly outlined and communicated KM vision. Some respondents thought a mission statement was a vision. They quoted the library's mission statement as the vision of the library. One respondent for example said, "We find it on the library web site" referring to the mission statement on the web site. Another respondent said, "The vision is there as stated in the mission statement". Others however indicated that they assumed that the library had a vision statement but had never seen it. One respondent for instance said, "I just think that should be the vision of the library but it is not written and I have never seen it". Yet others regarded the vision of the college as the vision of the library as evidenced by the statement, "I do not know the specific vision of the library. The vision I know is the University vision, which is also the college vision. So, I regard that same vision as the vision of the library". The score for the attribute was therefore adjusted to 40% (20 out of 50) instead of 76% (38 out of 50) after incorporating the interview statements.

In KCN library, five respondents indicated that the library had a vision statement while one indicated that it did not (responses included strongly agree, agree and strongly disagree). From the interviews though, it was established that the library did not have a vision statement. Like in Bunda library, some respondents in KCN confused the library vision with a mission statement. One respondent said for example, "on the website if you go to the library department, something is stated there about the mission of the library". Others reported that the library did not have a clearly outlined vision as evidenced by the following statements:

Respondent 1: "I have never seen one"

Respondent 2: "Not a vision of its own but it subscribes to the college vision. We just extract components we can do to assist the college achieve its vision"

The adjusted KCN library score is therefore 36.7% (11 out of 30).

Although the results do not show a significant difference between the scores, libraries were expected to score not less than 80% if their KM visions were clearly communicated to all staff (cf. section 7.1). The scores of less than 80% therefore indicate that the libraries did not clearly communicate their visions to all staff or worse still did not indeed have a vision statement.

The attribute of information and knowledge creation, collection and use focussed on whether these activities were encouraged in the library. In Bunda library, six respondents indicated that all the activities were encouraged, three were not sure and one indicated that the activities were never encouraged. The interview results however show that knowledge creation is not encouraged in the library. For instance, respondents reported that the only time they did research was during their studies. They also indicated that there are barriers to knowledge creation because of a negative attitude of senior staff towards juniors. Furthermore, others reported that they did not see any reason for conducting research because nobody does it. On the factor 'collection and use of knowledge', respondents mentioned that they were encouraged to record statistics of use of books from the collection. These are used for selecting materials for acquisition as well as identifying the needs of the users. The score for the attribute was 72% (36 out of 50).

In KCN library, four respondents indicated that the activities were encouraged while two indicated the opposite, resulting in the library scoring 63% (19 out of 30). From the

interviews, it was clear that knowledge creation was not adequately encouraged but collection and use was. Some respondents reported that the only time they did research for example, was during their studies. Others plainly stated that it was not encouraged. On collection and use of knowledge, respondents reported that they were encouraged to collect and use various types of knowledge. For example, they were encouraged to use statistics on the use of library materials to recommend items for acquisition. Furthermore, they were encouraged to record information about materials requested but not found in the library. This information is also used for acquiring new materials.

Although the results suggest that Bunda library are on a higher level of maturity than KCN library regarding this attribute, both need to improve because their scores are below acceptable levels of performance. It was further clear that although knowledge creation is taking place in the libraries, the employees are not aware that it is knowledge creation. For example, they create knowledge, from the statistics they record, about the needs of various user groups.

On information and knowledge sharing, the study sought to find out if the libraries' management encouraged this aspect. Seven respondents in Bunda library indicated that information and knowledge sharing was encouraged while three were not sure. From the interview results, it was clear that information and knowledge sharing was encouraged only by word of mouth and that it was not included as part of employees' tasks. A response such as "we just feel that it is necessary and we cannot do without it if we are to satisfy library users' needs. We normally ask each other. I think it is encouraged to do so" is evidence that information and knowledge sharing is not explicitly encouraged. Nevertheless the library scored 80% (40 out of 50) on this attribute.

KCN library also scored 80% (24 out of 30) with five respondents indicating that information and knowledge sharing is encouraged and only one not sure. The interviews confirmed that information and knowledge sharing is encouraged. One respondent for example, mentioned that there is in-service training at the end of every year where each employee is given opportunity to participate by making a presentation on a given topic. Another mentioned that it is set as a task for everyone at the circulations desk to record any important issues in a book that should be handed over to the next person on duty. Although the scores for the libraries are equal, it is argued that KCN library is at a higher level of maturity regarding information and knowledge sharing because it more actively encourages such activities.

The total aggregate score for Leadership for Bunda College library was 76% and for KCN 73%. The results indicate that there is no significant difference between the two libraries in knowledge leadership and in the view of the researcher it is still at the stage of development for both. The aspects of knowledge creation, collection and use are in their infancy and are not prioritised. Transformational leadership is lacking in both libraries (see section 5.3). The libraries did not score beyond 80% in all the attributes indicating that there is room for improvement. As leadership is one of the most important aspects of effective KM (cf. Wiig, 1993; Skyrme, 1999 ; 4.2.2), management in the libraries should ensure the development and support of KM activities.

7.4 Organisational culture

On organisational culture Bunda college library scored 73.5% (147 out of 200), while KCN scored 74.2% (89 out of 120). The dimension of culture was divided into the attributes of mutual trust, transparency, information and knowledge sharing and physical space for sharing information and knowledge (cf. Appendix A, questions 8-11; Appendix B, questions 7-10). Table 7.3 summarises the scores.

Table 7.3: Scores on organisational culture

Attribute	Score (%)	
	Bunda	KCN
Mutual trust	66	76.7
Transparency	74	66.7
I/K sharing practised	76	70
Physical space for sharing I/K	78	83.3
Overall score	**73.5**	**74.2**

On mutual trust, the study sought to determine if the library staff trusted one another and whether there is an environment conducive to knowledge sharing. Although four respondents in Bunda indicated that there was mutual trust among employees, four disagreed by indicating the opposite. Two were not sure whether there was mutual trust or not. The score on mutual trust in Bunda library was 66%. This result was confirmed by the interviews with three indicating that they trusted their colleagues and three indicating that they trusted some and not others. Some of the reasons highlighted for lack of trust were:

"they cannot know everything"

"Some people cannot keep your secrets"

"I do not like back biting"

In KCN the score was 76.7%. Five respondents indicated that there was mutual trust while only one indicated that there was none. From the interviews, one respondent mentioned trusting some and not all because others are naturally untrustworthy while the other respondents indicated that they trusted their colleagues.

The transparency attribute focussed on communication between library management and employees about changes and new developments in the library. In Bunda, five respondents agreed with the statement that there was transparency, four neither agreed nor disagreed and

one disagreed. However, two respondents indicated in the interviews that they never trusted library management mainly because it is biased. On transparency, the library scored 74%.

KCN scored 66.7% with three respondents indicating that there was transparency, two not knowing and one indicating that there was no transparency. In the interviews, respondents indicated that management assumes that they are aware of or have knowledge of certain things when actually they do not. Others however indicated that they trusted management because when they consult it, it helps and guides them.

The study further sought to determine whether information and knowledge sharing was practised in the libraries. The focus of this attribute was the existence of any information and knowledge sharing activities for example asking colleagues for assistance, making use of lessons learned and making use of the portal where various information required by staff would be found. Bunda library scored 76%. Six respondents indicated that information and knowledge sharing was practised in the library, three were not sure and one indicated that it was not. The interview results however, revealed that information and knowledge is mostly shared verbally and this happens between two individuals or in group discussions. Furthermore, there is no documentation of lessons learned or procedures followed to deal with important issues and therefore, there is no storage of such information for communal use. All respondents however, indicated that knowledge sharing was important to them because it helped them to carry out certain tasks without which it could not be possible.

In KCN, three respondents were positive that information and knowledge sharing was practised, two were not aware and one did not agree that it was practised. Respondents indicated activities such as the keeping of a logbook on the circulations desk and in-service training at the end of the year as some of the information and knowledge sharing activities. The respondents also indicated that most of knowledge sharing was informal i.e. verbal

although e-mails and memos were also used. KCN library scored 70% on this attribute. As in Bunda library, respondents in KCN thought that knowledge sharing was important to them because it helps in carrying out various duties. It is not surprising though, that there were very few or no formal activities of information and knowledge sharing in the libraries because there were no rewards for doing so, as indicated by the interview results.

The attribute of physical space for sharing information and knowledge focussed on whether this was provided by the library. Eight respondents in Bunda indicated that the library provided the space, one was not sure and one indicated that the library did not provide the space. On physical space, the library scored 78%. KCN library scored 83.3% with four respondents indicating that the library provided the space for information and knowledge sharing while two respondents did not know.

The total aggregate score for Organisational Culture for Bunda was 73.5% and 74.2% for KCN. Although the results suggest an approximately similar level of maturity for both libraries, individual attributes such as developing mutual trust and ensuring transparency require improvement. These attributes are the major determinants of information and knowledge sharing among employees. Employees collaborate and work effectively together when there is mutual trust (see section 5.4). It is surprising though that information and knowledge sharing is still practised to a certain extent although there is little trust and transparency.

7.5 Organisational structure

Under organisational structure, the focus was on the superior-subordinate relationship that is determined by the type of structure, teamwork and definition of KM roles (cf. Appendix A, questions 12-14). The scores on this factor are summarised in table 7.4.

Table 7.4: Scores on organisational structure

Attribute	Score (%)	
	Bunda	KCN
Flat structure	56	76.7
Team work	82	90
KM roles defined	78	70
Overall score	**68.7**	**78.9**

On the type of structure, the study sought to determine whether the library had a flat or hierarchical structure. In Bunda library, two respondents indicated that the library had a flat organisational structure, one was not sure and seven indicated that it did not. The score on type of structure was 56% (28 out of 50). Four respondents in KCN indicated that the library had a flat structure, one was not sure and one indicated that it was not, awarding the library a score of 76.7% (23 out of 30).

The attribute of teamwork focussed on whether library management encouraged teamwork among the employees. Eight respondents in Bunda library agreed with the statement that teamwork was encouraged, one neither agreed nor disagreed and one disagreed with the statement. The library therefore scored 82% (41 out of 50) on teamwork. KCN on the other hand scored 90% on teamwork with all three respondents strongly agreeing to the statement that teamwork was encouraged and three agreeing that it was.

On KM roles, the aim was to determine if the employees had clearly defined KM roles. Seven respondents in Bunda library indicated that their KM roles were defined, two were not sure and one indicated that the roles were undefined. The library scored 78% on this attribute. In the KCN library, four respondents indicated that the roles were defined, one did not know and one indicated that they were not defined. KCN therefore scored 70%

The total aggregate score for Organisation Structure for Bunda library was 68.7% and for KCN library 78.9%. The scores indicate that the structure in Bunda library is not KM

supportive as features such as a flat structure and clear definition of KM roles that would encourage KM activities (see section 5.5) were barely available. Although the score for KCN library suggests a KM supportive structure, observation of the library organogram (figure 2.2) implies that the structure is hierarchical and this contradicts what some respondents indicated. The organisational structures of both libraries therefore would require adjustments to enable them to support KM activities.

7.6 KM processes

The KM processes dimension covered five attributes namely knowledge profiles; procedure recording; incentives for information and knowledge sharing; capturing, storing and using library user information; capturing, storing and using information and knowledge from college meetings (cf. Appendix A, questions 15-19; Appendix B, questions 11-13). Table 7.5 provides a summary of the scores on the dimension.

Table 7.5: Scores on KM process

Attribute	Score (%)	
	Bunda	KCN
Knowledge profiles	58	60
Recording procedures	54	46.7
Incentives for I/K sharing	40	50
Library user information captured, stored and used	76	66.7
I/K from college meetings captured stored and used	72	66.7
Overall score	**66**	**58**

Regarding the knowledge profiles, respondents were asked to indicate whether the libraries had employee profiles outlining their qualifications and competencies. Four respondents in Bunda library indicated that the library had the profiles, two were not sure whether the library had the profiles or not and four indicated that the library did not have the profiles. The library therefore, scored 58% on this attribute. In KCN library, two respondents indicated that the library had knowledge profiles; two did not know whether the library had the profiles and

two indicated that the library did not have the profiles. The library scored 60% on this attribute.

On procedure recording, respondents were asked to indicate whether they were encouraged to record procedures taken to perform some of their tasks. In Bunda library, two agreed to the statement, three neither agreed nor disagreed and five disagreed to the statement. For this attribute, the library attained a score of 54%. Only one respondent in the KCN library agreed with the statement that the library had knowledge profiles, one neither agreed nor disagreed and four disagreed. The library scored 46.7%

Respondents were also required to indicate whether incentives are provided to share information and knowledge. Six respondents in Bunda library indicated that there were such incentives, three were not sure and one indicated that the library did provide incentives. This is contrary to the interview results, which indicate that the library never awarded incentives for information and knowledge sharing. Some respondents indicated that verbal appreciation was shown at individual level. For example, one respondent said, "On the part of management no (meaning there are no rewards). Some individuals truly say, aah, this is wonderful! We did not expect this to be done like that." One indicated that information and knowledge sharing was regarded by management as part of the employee's work. The score on this attribute therefore was lowered to 40% (20 out of 50).

In KCN library, two respondents indicated that there were incentives for information and knowledge sharing while four indicated that there were none. The library thus scored a score 50% for this attribute. The interview results confirm that employees are not rewarded for sharing information and knowledge. For example, one respondent said, "there is nothing of that nature here".

In Bunda library, seven respondents indicated that they were encouraged to capture store and use library user information while three were not sure. In the interviews, respondents reported that the only information that is captured about users in the library is the statistics on the number of books borrowed per day and it is used to determine what part of the collection is heavily used. Furthermore, the information helps to recommend books for acquisition. However, important information on who uses the books and the titles of books used was not recorded or stored anywhere but in employees' heads. The same is true for information sought by users but not available in the library or queries that require more time to address. As one respondent reported,

> Keep it (question asked by user) in your head. Sometimes we record on a paper, keep it in a pocket, and when information is found destroy it. Statistics are collected on a daily basis and recorded in a book i.e. by taking note of the number of books that are borrowed by users in the general and reserve collections.

On this attribute, the library scored 76%. Three respondents in KCN library indicated that they were encouraged to capture, store and use, library user information while the other three indicated that they were not. The library thus scored 66.7% for this attribute. However, the interviews revealed that the library captures user information using the library management system. The information is used to determine which books are usually used, to recommend books for acquisition and to write reminders. For example, one respondent said,

> The online circulation system captures the information and stores it electronically. At times we get a print out of hard copies so that we may have a good record of overdue fines and the like and so, we use (refer to) these to write reminders.

Seven respondents in Bunda library indicated that information and knowledge from other college departments was captured, stored and used while two were not sure and one indicated that it was not. The results were confirmed by the interviews, which indicate that some of the information from other departments was captured. For example, the information needs of

staff in various departments were captured by contacting the departments. As one respondent reported,

> Most of the departmental staff do not have the impetus to come to the library. The librarian sends messages to ask them what (books, etc.) they need. Some respond while others do not. Sometimes the library organises a book fair like in the past we had Anglia Books. Departmental staff come to the fairs to look at the books and by doing so, they are able to identify and indicate the books that they need. We use that information to know their information needs.

The library scored 72% on this attribute. Three respondents in KCN library indicated that the information was captured; one did not know whether the information was captured and two indicated that it was not. The interviews however, confirmed that some of the information from departments was captured. For example, personal details of students and staff were captured by the library and used for producing IDs. In addition, information needs of lectures from various departments are captured when the library asks them to recommend books for their respective courses. KCN library therefore scored 66.7%.

The total aggregate scores for KM processes for Bunda library was 66% and for KCN library 58%. This indicates that the libraries do not place particular emphasis on KM processes. In any organisation, knowledge embedded in processes is necessary for performance improvement (see section 5.6). This should be made explicit and available to employees who need it.

7.7 Technology

The technology dimension covered the attributes of social networking tools, e-mail, intranet and shared drive (cf. Appendix A, questions 20-21). The scores on this dimension are summarised in table 7.6.

Table 7.6: Scores on technology

Attribute	Score (%)	
	Bunda	KCN
Social networking tools	40	36.7
E-mail	84	96.7
Intranet	82	83.3
Shared drive	56	46.7
Overall score	**71**	**70.8**

On social networking tools, the study sought to find out whether the libraries used blogs, discussion forums, wikis and instant messaging among other tools, to support communication, knowledge creation and exchange. Four respondents in Bunda library indicated that the library used the tools, two did not know and four indicated that the library never used such tools. From the interviews, it was clear that the library never used the tools as none of the respondents mentioned them when asked to state how knowledge sharing was done. On this attribute therefore, the library scored 40% (20 out of 50). In KCN library, two respondents indicated that the library used social networking tools, two did not know and two indicated that the library never used the tools. The interviews however, revealed that the library never used the tools because none of the respondents mentioned them as a means of sharing information and knowledge. The library therefore, scored 36.7% (11 out of 30).

In Bunda library, nine respondents indicated that the library used e-mail while one did not know. The library therefore scored 84%. All respondents in KCN library indicated that the library used e-mail with five strongly agreeing and one agreeing, awarding the library a score of 96.7%. The interview results confirmed that the library used e-mail for information and knowledge sharing as respondents from both libraries mentioned it.

On the use of the Intranet for information and knowledge sharing, eight respondents in Bunda library reported that the library used the Intranet while two did not know, and this gave the library a score of 82%. In KCN library, five respondents reported that the library used the

Intranet while one indicated that it did and this provided a score of 83.3%. Although the intranet was not mentioned in the interviews, the libraries clearly use it as their network is hosted on a central server.

In Bunda library, three respondents indicated that the library used a shared drive for storage and sharing of information and knowledge, two did not know and five reported that the library never used a shared drive. The library scored 56% on this attribute. KCN scored 46.7% on this attribute with two respondents agreeing that the library used a shared drive, one neither agreeing nor disagreeing and two disagreeing.

The total aggregate scores for technology for Bunda library was 71% and for KCN library 70.8%. This indicates that the libraries do have technological infrastructures and that these should be better utilised and possibly improved to support KM activities. For example, both libraries have Intranet and Internet but do not make use of shared drives or social networking tools to share information and knowledge. Although technology on its own would not enhance KM activities (see section 5.7), it is important that the libraries recognise the advantages it holds for KM and improve their use and the current IT infrastructure to fully accommodate information and knowledge storage, sharing and use.

7.8 KM Measures

The focus of this dimension was the implementation of a mechanism to monitor and evaluate progress in KM activities i.e. as part of employees' performance (cf. Appendix A, question 22). Table 7.7 summarises the scores on this aspect.

Table 7.7: Scores on KM measures

Theme	Attribute	Score	
		Bunda	KCN
KM measures	Measures to monitor and evaluate KM	70	73.3
	Overall	**70**	**73.3**

Five respondents in Bunda library indicated that there was a mechanism, four did not know and one reported that there was no mechanism. The library therefore scored 70%. In KCN library, four respondents reported that there was a mechanism while two reported that there was none, awarding the library a score of 73.33%.

Although the scores indicate that in both libraries there are certain measures to monitor and evaluate progress in KM activities, it is argued that these are not clearly defined because both libraries do not have visions and objectives that place KM activities at the core of the libraries' performance. Without visions and objectives, the libraries do not have a reason to measure KM and it is impossible for them to establish clear measures (see section 6.8).

7.9 Information and knowledge sources in the libraries

To identify the information and knowledge sources in the libraries, respondents were asked to list the categories of information and knowledge they use in their jobs (cf. Appendix A, question 22). They were further required to rate the value and the risk of losing these resources on a scale of one to five (1=least important, 5=most important; 1=low risk, 5=high risk). The table below outlines the various categories of information and knowledge and the scores awarded by the respondents.

Table 7.8: Categories of information and knowledge

Bunda library	Value	Risk	KCN library	Value	Risk
Managerial					
Library regulations	5	3	Delegation procedures	5	5
UNIMA conditions of service	5	3	Organisation procedures	4	4
Leadership	4	5	Electronic journal management	5	2
			Human Resource Management	5	3
Non-managerial					
Library of Congress Online Catalogue	5	1	Knowledge sharing	4	4
LC Catalogue schedules	5	1	Training	5	5
CDS-ISIS	4	5	Networking	4	4
Information on shelving	5	1	Cataloguing	5	2
Information on filing	5	1	Information on shelving	5	1
Information on scanning	5	4	Cash handling	5	1
Database	5	3	Internet information searching	4	1
Computer knowledge	5	1	Circulation	5	2
Catalogue	4	1	Spine labelling	4	1
ICT skills	4	5	Accessioning	5	2
Teaching	4	5	Acquisition	4	1

On average, the information and knowledge resources in KCN library were scored a value of 93.6% (4.7) and the risk of losing them was put at 46.3% (2.3). In Bunda College library, the resources scored an average value of 93.6% (4.7) and average risk of 56% (2.8). There is no significant difference between perception of the respondents in Bunda College and KCN libraries of the value and risks, of their information and knowledge resources. It is further argued that the high scores awarded clearly indicates that both libraries place a high value on their resources.

Respondents were also asked to list and rate, on the scale one to five (one=low value, 5=high value), the sources of their information and knowledge (cf. Appendix A question 23). The major sources of information were the Internet, print materials (books, pamphlets, etc.), superiors and colleagues. The results indicate that respondents place more value on the

Internet (Bunda=82%, KCN= 73%) than their colleagues (Bunda=68%, KCN=50%). This would suggest that the flow of information and knowledge and sharing among employees is not what it should be – this confirms earlier results that indicated that there were weak communication links among employees. Furthermore, the results suggest that the flow of knowledge between superiors and their juniors is not smooth as there is little value placed on the superiors as sources of knowledge (Bunda=18%, KCN=30%). The results concur with earlier findings in Bunda library, where the communication links between most junior staff and senior staff (librarians) were weak. However, the results are contrary to earlier findings in KCN library that showed strong links between the librarian and subordinates.

Respondents were further required to indicate where they stored their information and rate the value of the storage medium and the risk of losing the information stored on that medium on the scale of one to five (cf. Appendix A, question 24). The tables below summarise the outcomes.

Table 7.9: Information storage in Bunda College library

Location	Value (%)	Risk (%)
Work computer	97	57
Flash disk (personal)	96	80
Office files (print)	90	60
Books	100	40
Head (Person)	100	20
CD Roms	80	80

Table 7.10: Information storage in KCN library

Location	Value (%)	Risk (%)
Work computer	93.3	40
Flash disk	100	40
CD Rom	100	20
Filing cabinet	80	100
Server	100	20

In Bunda library, books and people were valued highly (average score =100%) followed by the other storage spaces i.e. the work computer, flash disk, files and CD ROMS respectively. Respondents also indicated that they were at less risk of losing information if they stored it in their head (average score =20%) while the risk of losing information when using a flash disk was high (average score= 80%). Respondents reported that they used the work computer more than any other storage space.

Like Bunda library, KCN reported a high value for computers as storage space. The most valued storage spaces were CD-ROMs and flash disks (average score= 100%) followed by the work computer and filing cabinets. Respondents reported that they were at less risk of losing information if they used CD-ROMs (average score= 20%) while they indicated a high risk of losing information if they stored it in filing cabinets (average score= 100%).

7.10 Information and knowledge needs

The dimension of information and knowledge needs sought to identify the short and long term needs of the respondents and information and knowledge resources that were scarce in the respondents' environment. Furthermore, the dimension sought to identify what respondents do to remedy situations when information and knowledge required for their work is not readily available (cf Appendix A, questions 25-29; Appendix B, questions 14-15).

In Bunda library, respondents indicated that their primary information and knowledge needs related to their need to improve their management, customer care, marketing and ICT skills, both in the short and long terms. The knowledge and skills would also be important to all library staff and library users. Respondents in KCN library reported the need for management and professional training in their jobs both in the short and long terms. The knowledge and skills would also be important to respondents' colleagues within the library and in other academic libraries in Malawi. The table below summarises the needs

Table 7.11: Information and knowledge needs in the libraries

Period	Bunda library	KCN library
Short term	Library management	Budgeting
	General management skills	
	Information systems	
	Customer care	
	Information marketing	
Long term	Library database management	Strategic planning
	Advanced IT skills	Professional training
	ICT skills	
	Filing	
	Shelving	

In Bunda library, Government department documents, information systems, communication and management skills were identified as scarce knowledge resources. In KCN library, respondents reported that policy documents on collection development, documentation on library management system in use, computer technical skills and online journal subscription were scarce knowledge resources. Some respondents from both libraries however, found it hard to distinguish between personal knowledge and that which is held in library resources. This can clearly be seen from the following responses to the question regarding whether there were any scarce information and knowledge resources in the respondents' environment.

Respondent 1: In terms of library material, it takes a long time to obtain them through interlibrary loan and therefore inconveniences the users.

Respondent 2: Malawian aquaculture information is very scarce. If we had that information, users would not be struggling to get it

This is an indication that employees' understanding of knowledge management is inclined towards management of the library stock.

To gather evidence of the impact of lack of information and knowledge on the employees' performance, respondents were asked to mention instances when knowledge necessary for their work was not available. In Bunda library, one respondent indicated failing to assist users

in accessing electronic journals because the respondent did not know how to access the journals. Other respondents mentioned failure to catalogue library items in the absence of the chief library assistant. Others indicated failure to sort out problems with an Oracle database in the absence of the technical services librarian. Respondents also mentioned that they were not sure what to do with faulty library equipment.

Three instances were reported in KCN library with regard to the lack of information that was needed to work effectively: lack of clear collection weeding procedures when weeding was required; difficulty in finding the cost of an electronic security system that would be compatible with the library management system; and insufficient information about how to register students online.

It was found that when respondents in both the libraries are faced with such situations they consult their superiors, colleagues or search the Internet for appropriate solutions / answers.

7.11 Barriers to effective knowledge management

This dimension was included to identify the barriers to knowledge management and to determine the understanding of knowledge management among employees (cf. Appendix A, question 30). The barriers in Bunda library were lack of regular and proper professional training of staff, lack of awareness of KM among staff, poor work relationships, time limitations for staff to interact frequently, lack of necessary resources for effective KM and lack of motivating factors. In KCN library, the barriers were lack of appropriate technology, inadequate professional training, jealousy, poor communication, poor storage of information and poor consultation strategies.

The barriers highlighted by respondents confirm the results discussed in sections 6.1 to 6.9 i.e. there are many aspects of KM that require attention to implement KM successfully in the libraries. To establish how knowledge sharing could be optimised as a possible means to

solve the various KM-related problems and to align them to the employees' expectations, respondents were asked to suggest how information and knowledge sharing could be encouraged in the libraries. The following section summarises their responses.

7.12 How to encourage information and knowledge sharing in the libraries

To gauge the respondents' expectations of possible KM interventions in the libraries, a question on how information and knowledge sharing could be encouraged was included in both in the questionnaire and interview studies (cf. Appendix A, question 31; Appendix B, questions 16-17). Respondents in Bunda College library indicated that regular in-house training and workshops, forums to discuss library issues, exchange visits or programmes to other academic libraries, reliable Internet connectivity, unity of purpose and hard work among staff members and equal opportunities to all staff could improve information and knowledge sharing. In KCN library, respondents mentioned that introducing an information and knowledge management system to capture knowledge was one of the ways to encourage information and knowledge sharing. Furthermore, it was indicated that adequate professional training, introducing discussion forums, regular departmental meetings and exchange visits to other academic libraries, could encourage information and knowledge sharing in the library.

7.13 Conclusion

The assessment revealed more weak aspects of KM in the libraries than strong ones. The weak aspects are leadership, culture, structure, KM processes, technology and KM measures while the only strong aspect was employee motivation and competencies. This is not surprising because both libraries have never developed and implemented KM strategies. In the following chapter these results will be further analysed and discussed and a roadmap for KM implementation will be proposed.

CHAPTER EIGHT

CONCLUSION AND RECOMMENDATIONS

8.1 Introduction

The aim of the study was to determine the state of KM in the Bunda College and KCN libraries. This was done by evaluating and comparing current inherent KM practices in the libraries and establishing what factors would enhance or impede the actual application of KM in the libraries. During the process it became clear that each institution could learn from the other and that the study has provided a sound basis for implementing knowledge management in the libraries.

In chapters one to four, the dissertation presented the theoretical background to information and knowledge management. KM critical success factors that determine an organisation's KM maturity levels and a model to conduct an information and knowledge audit as precursor to KM implementation were proposed in chapter five. The methodology described in chapter six was based on this model and it served as the framework to analyse the data collected and discuss the main research findings in chapter seven.

This final chapter discusses the main conclusions and recommendations relating to the status of KM at the two academic libraries studied. It provides a practical strategy and roadmap that can be used to further develop and implement KM within the University of Malawi Library system.

8.2 Main Conclusions

In general, the results of the study show that the libraries are at level one of KM maturity according to the maturity levels proposed by Kulkani and St Louis (2003). This means that employees in the libraries are generally willing to share and use knowledge and that some

understand the value of doing so (cf. Table 6.1). It was further clear that the management of intangible assets is left to chance and therefore the libraries are not able to benefit from these assets optimally. It is argued that the situation could be rectified if the steps outlined in the KM implementation roadmap in 8.3 were to be followed.

In the following sections the main conclusions, problem areas that have been identified and suggestions to improve the libraries' KM maturity levels will be discussed following the framework adopted in chapters 5 and 7.

8.2.1 Employee motivation and competencies

It was found that most of the employees in the KCN and Bunda College libraries were aware of the value they add to the libraries (cf. section 7.2). While Bunda College library scored higher than KCN library it was clear that employees in both libraries were aware of their libraries' objectives and their role in achieving these objectives. There was a distinct commitment towards attaining the goals set by the libraries. This is encouraging because commitment influences intrinsic motivation, which according to Whitom and Roy (2009) is a necessary requirement for individuals to share and use knowledge. Employees, who are aware of an organisation's objectives, are by nature more conscious of their role in achieving the objectives. Thus involvement of employees in formulating objectives (cf. Whitom and Roy, 2009) and communication of the same is required to cultivate motivation which in turn would stimulate employees to share and use knowledge in executing their roles (cf. also section 5.2). It is thus proposed that more effort is made, particularly in the KCN library, to increase employee motivation, to encourage them to become more involved in formulating objectives for the library and to stress the important role they play to achieve these objectives..

It was further reported in 7.2 that there was a perception amongst some employees that management, especially in the Bunda College library, did not value them and this would suggest that recognition and rewarding of employees might be biased. An unfair and prejudicial reward and recognition system would have a negative impact on employees' motivation (cf. Hosoi, 2005) and may result in high staff turnover, poor performance and service delivery. What is more, although rewards might not have a direct impact on motivation to share knowledge, individuals who think there is injustice would be intrinsically de-motivated and therefore not willing to share their knowledge or use knowledge from others. To mitigate the problem the libraries can introduce reward systems that are consistent with their parent organisation's systems. They can also increase autonomy of employees in executing their duties and thus improve their sense of responsibility and accomplishment.

It is encouraging to note that most employees in both libraries enhanced their professional development by belonging to the Malawi Library Association (MALA), the only active local LIS association. It is however suggested that employees should be made aware of and encouraged to join other professional associations outside Malawi. These could easily be achieved by joining one or more of the numerous virtual groups that exist. Management should actively promote the benefits of belonging to external networks to stay abreast with international developments and to further enhance professional development (cf. also Townley, 2001).

Although the questionnaire responses showed a high score for communication in the libraries, the interviews indicated a contrary position in that respondents commented on the poor communication strategies between top management and the lower ranks. The libraries should therefore encourage a more open environment where employees can consult each other freely. Furthermore, management in both libraries should devise strategies, as suggested by Holste and Fields (2009: 135), that would enhance communication links among individuals

and which would encourage employees to interact and consult each other more actively in the execution of their daily tasks. Employing such strategies would encourage the development of the "knowledge in people" and "knowledge in relationships" levers referred to by Skyrme (1999) (cf. section 4.2.2).

8.2.2 Leadership

One of the major problems that surfaced with regard to the leadership factor was that the libraries lacked a clearly formulated and communicated KM vision (cf. section 7.3). What is more disturbing is the fact that the libraries did not have overall vision statements. It can be questioned whether under these circumstances the libraries are able to advance and whether they are capable of meeting their users' needs. The researcher is in agreement with McShane and Von Glinov's (2010: 371) view that an organisation's vision has a direct impact on the organisation's sense of purpose. It helps not only to motivate employees but also to guide them. It is therefore strongly recommended that to improve performance, the managers in the Bunda College and KCN libraries should develop both KM and overall vision statements (cf. also section 5.3).

Another disturbing factor that surfaced strongly during the interviews was that while information and knowledge collection and use was generally encouraged, knowledge creation was not generally promoted (cf. section 7.3). It is further clear that only in the KCN library did leadership encourage information and knowledge sharing (cf. section 7.3). The importance of information and knowledge creation, collection, sharing and use in KM cannot be overemphasized. These fundamental KM processes are important to ensure the success of any KM initiative and therefore the leadership in the libraries have to be made aware of this fact and encouraged to promote them.

It is suggested that information and knowledge creation, collection, sharing and use can be promoted by

- encouraging group or individual research and problem solving
- clearly outlining the types of information and knowledge to be collected and stored by employees when conducting certain tasks
- encouraging employees to make use of relevant information and knowledge that has been harvested and stored
- Further encouraging teamwork that requires two or more employees to collaborate.

If these strategies were to be employed it would further assist with developing an organisational culture that is KM supportive (cf. also section 5.4).

8.2.3 Organisational culture

With regard to the organisational culture factor, it was found that information and knowledge sharing was practised only to a certain extent (the less than favourable practice came out during the interviews). While it is encouraging to note that the libraries provided physical space for information and knowledge sharing, it is unfortunate that the space is not fully utilised. The main factors that impeded information and knowledge sharing were the lack of trust among some employees and lack of transparency by management (cf. section 7.4 and also section 5.4).

Low levels of transparency by management create a gap between management and employees and this impedes the flow of information and knowledge in any organisation. Such an attitude by the libraries' management would make it difficult for them to convince employees of the importance of knowledge sharing since they would not be leading by example (cf. Jayasingam, Ansari and Jantam, 2009; Whittom and Roy, 2009; Connelly and Kelloway, 2009; Migdadi, 2009). Lack of transparency would thus result in lack of trust by

the lower level employees in management and lack of motivation among employees to share information and knowledge.

Other reasons given for lack of mutual trust were

- backbiting
- the thought that other people cannot know everything and
- that some people are naturally untrustworthy.

These attitudes are similar to the ones identified by Laydner, Alavi and Kayworth (2006) and it is clear that individuals who do not trust their colleagues would be reluctant to contribute their information and knowledge and uncomfortable to use other people's ideas.

It is suggested that the leaders in the libraries could help to improve trust among employees by involving employees in important matters affecting the library, for example formulation of objectives and strategic planning and also by engaging employees in teamwork that encourages collaborative interaction, relationship building and the development of individual competencies. Leading by example can further improve trust and motivate employees to follow management's example of sharing information and knowledge. These interventions would result in less knowledge hoarding, greater information and knowledge sharing, and consequentially improve library services. It is thus clear that the libraries require transformation of the organisational culture to develop a KM supportive culture. Change in culture requires concerted effort among employees and leadership.

8.2.4 Organisational structure

Although the respondents indicated that the KCN library did have a flat organisational structure (cf. Table 7.4) it is clear from the organograms for the libraries (figures 2.1 and 2.2) that both libraries in fact have a hierarchical structure. The perception of a flat organisational structure at KCN library can be attributed to its smaller staff complement which would result

in the hierarchical structure having far less an impact than at the larger Bunda library. Hierarchical organisational structures generally impinge on knowledge flow and sharing as well as transparency between management and other employees. It is generally recognised that a less formalised and more integrated organisational structure is necessary to ensure successful KM programmes (cf. for example the findings by Claver-Cortes, Zaragoza-Saez and Pertusa-Ortega (2007) and Chen and Huang (2007) reported in section 5.5). However, as suggested by Claver-Cortes, Zaragoza-Saez and Pertusa-Ortega (2007), certain aspects of a bureaucratic structure are needed for control. It is thus suggested that the libraries therefore need not necessarily abolish the current structures but can create a less formalised structure within the formal framework. The success of KM programmes would thus largely depend on the leaders in the libraries creating the necessary relationships that would bridge the gap between them and the other employees.

While the libraries' organisational structures were problematic, it was found that the libraries encouraged teamwork which is an important element in making KM initiatives work. However, such efforts can only thrive in a culture that is KM supportive and to ensure that teamwork initiatives are effective it is proposed that greater effort is made to create a culture where there is trust and where information and knowledge is shared (cf. section 8.2.3).

If KM initiatives are to operate effectively it is necessary to define the KM roles of employees in the libraries and although the majority of respondents had indicated that such roles were defined (cf. section 7.5), it is contended that this is not the case and that the question had been misinterpreted. As discussed in sections 8.2.2 to 8.2.3 and as will be noted in section 8.2.5, it was clear that KM was neither encouraged nor integrated with employees' tasks. It is thus proposed that the leadership in the libraries should ensure that KM roles are clearly defined to achieve the KM objectives (the latter in turn should be outlined in the proposed KM objectives statements).

8.2.5 KM processes

It was seen in section 7.6 that of the five attributes that were investigated to see how well the libraries scored with regard to the KM processes dimension the lowest scores were returned for the 'creation of knowledge profiles', the 'recording of procedures' and the provision of 'incentives to share information and knowledge'.

The creation of knowledge profiles is an important KM process that helps to determine those individuals in an organisation who have knowledge that might be useful to others and which should be leveraged (cf. section 5.6). Employee profiles that might have been created when new recruits were employed should also be constantly updated to reflect new experience and skills gained from courses attended and on the job learning. It is therefore suggested that the library managers should on an annual basis create / update employee profiles to capture and circulate individual competencies and skills. The exercise might further also encourage employees to continue learning and renew their knowledge (i.e. be lifelong learners) which is one of the goals of KM.

The systematic recording of procedures helps to codify individuals' tacit knowledge and if made generally available employees who perform similar tasks are assisted (this obviates 'reinventing the wheel').. Takeuchi and Nonaka's SECI model (see section 3.2.2) clearly indicates that procedure recording is an important method to externalise knowledge and this assists employees to act more intelligently (cf. Wiig 1993) by helping them avoid mistakes and saving time in performing tasks. It is therefore proposed that procedure recording should be more actively encouraged and included in the libraries' task descriptions. However, caution should be exercised and only knowledge about essential and durable procedures should be captured (cf. Wiig, 1993: 20).

A fundamental component of any KM initiative is information and knowledge sharing and if incentives are provided to encourage these processes, they should occur more readily. Although the sharing of information and knowledge does not solely depend on extrinsic motivation, incentives do help reinforce expected behaviour (cf. also section 5.2). It is therefore recommended that the libraries should establish a reward system that would promote information and knowledge sharing and other KM-related activities. Caution should though be taken in establishing the system and only behaviour that is essential for KM development should be rewarded (cf. section 5.2). The library managers can help employees understand the relationship between the efforts they make and the performance required and thereby provide the reasons why some behaviours might be rewarded and others not (cf. the reference to Hosoi's (2005) suggestions, in section 5.2),.

Although the majority of respondents indicated that employees were encouraged to capture, store and use library user information (cf. table 7.5) it was found that the information gathered about users was insufficient or not effectively used. For example, in the Bunda College library, statistics are gathered on how many books are borrowed but the titles are not recorded. This means the library cannot easily determine the titles that should be added to its collection. The KCN library while having the potential by means of its library management system to determine collection use patterns and hence the information needs of its users, surprisingly does not use this to understand its users (cf. section 7.6). This is disturbing as it implies that the libraries have not made the effort to gather information about the communities they serve. It is therefore suggested that the libraries should be required to clearly outline the kind of user information that they should gather and the purpose thereof.

8.2.6 Technology

It was argued in section 5.7 that the appropriate use of technology is an important enabler to ensure the successful implementation of KM and to establish how well this dimension was

integrated in the libraries' operations the use of social networking tools, e-mail, the intranet and the shared drive were investigated. It was seen in section 7.7 that only e-mails and the intranet were being used extensively.

The extensive use of e-mail and the library system's intranet is encouraging as it is one way of improving information and knowledge flows within the library. This, however, is not sufficient as people often do not open their e-mails and may not be aware of what is happening. It is argued that a variety of social media tools should also be used to enhance information and knowledge sharing (cf. the discussion on the benefits of using a range of technologies in section 5.7).

While e-mail and other social networking tools mainly help to link individuals, the use of a shared drive and the intranet mainly helps to link people to information (cf. Revilla, Rodriguez-Prado and Prieto, 2009: 350). The libraries therefore should make use not only of the intranet, but also utilise the shared drive facility to provide access to information. It should be noted however, that the use of these tools neither should replace face-to-face interactions nor be regarded as an end in itself. Effective use of technology for KM requires consideration of the human element (cf. Mohamed, Stakonsky and Murray, 2006; Revilla, Rodriguez-Prado and Prieto, 2009).

8.2.7 KM measures

Although the responses obtained indicate that the libraries provide mechanisms to measure KM activities (cf. 7.8) it is difficult to accept this considering the number of factors that have surfaced indicating that KM is not prioritised. Firstly, leadership in the libraries does not fully encourage KM activities (cf. section 8.2.2). It would be in the interest of leadership, once KM has been fully introduced, to measure progress of the KM programmes and thereby show return on investment (cf. section 5.8). Secondly, the organisational cultures are not KM

supportive indicating that not much effort is being made towards transforming the cultures to make use of KM in achieving the libraries' objectives. Lastly, very few KM activities (indicating KM processes), take place in the libraries. Noteworthy, is the fact that of the few activities taking place, many are unnoticed by employees. All these factors indicate that little is done to measure KM progress let alone the outcome of KM activities (cf. Hellstrom and Jacob, 2003; Rumizen, 2002). If KM measures were implemented, employees would be more aware of KM activities and the potential to improve the performance of the libraries. In addition, leadership in the libraries would be more prone to encouraging KM activities and this would further be reflected in the organisational culture.

8.2.8 Information and knowledge sources in the libraries

It was found that employees in the libraries valued the information and knowledge resources that they used to execute work-related tasks (cf. section 7.9). This is important, as employees would then tend to take greater care of the resources that they think are valuable and they would be more aware of improving accessibility and making it available to their colleagues.

It is suggested that the reason why employees valued the Internet more as a source of information than their colleagues, and their superiors less than their colleagues (cf. section 7.9) is because the culture in both libraries is not KM supportive. There is lack of trust that could have helped to build meaningful relationships among staff, particularly to overcome hierarchical barriers (cf. section 8.2.3). Management does not promote KM processes and therefore the processes are mostly unsystematic and not used to achieve the libraries' goals (cf. section 8.2.6). In addition, the gap between managers and subordinates has been widened by the structure (section 8.2.4) as well as the culture that does not encourage knowledge exchange (cf. section 8.2.3).

The fact that employees in both libraries more readily used their work computers to store information despite placing a higher value and often lower risk on other storage media (cf. section 7.9) can be attributed to the fact that all employees have access to a desktop and it is thus the most convenient storage medium available. This suggests that employees are aware of the risks associated with various storage spaces but availability of a storage space rather than its reliability underscores its use. This could help in developing a basis for encouraging employees to upload their information onto a shared drive, for example, to make such information more generally accessible to others and to create a backup to reduce the risk potential.

8.2.9 Information and knowledge needs

It clearly emerged from the study that it is of the utmost importance to address the librarians' information and knowledge needs to ensure improvement of the libraries' performance. Certain information needs such as 'general management skills, customer care, etc.' which were mentioned by the Bunda College librarians and 'budgeting and strategic planning' by the KCN librarians (cf. Table 7.11) can be addressed by on-the-job training and mentoring. The other information needs that were mentioned can better be addressed by sending employees to workshops or even allowing them to attain further formal professional education. The libraries should encourage lifelong learning to ensure that employees cope with changing professional and user needs.

Some respondents' perception that information that they required was 'scarce' or not available (while it in fact was readily available, cf. the KCN Library's weeding policy, information about cataloguing and assisting users to access electronic information sources section 7.10) points to the problem that information was not readily shared. It is suggested that this is a direct result of the prevailing organisational culture that does not encourage knowledge sharing (cf. section 8.2.3). It could also be because the respondents did not take

the initiative to ask for the information, or that certain information is hoarded and only made available to a selected few. These factors again point to a culture that is not conducive to the application of knowledge management principles.

8.2.10 Barriers to effective knowledge management

The success factors for implementing knowledge management were discussed in chapter 5. Any act or behaviour that would negatively affect these factors will be a barrier to effective KM. From the responses obtained it is clear that the main barriers in the Bunda library were the lack of regular and proper professional training of staff, lack of awareness of KM among staff, poor work relationships, and time limitations for staff to interact freely and frequently, lack of necessary resources for effective KM and lack of motivating factors. In KCN library, the barriers were lack of appropriate technology, inadequate professional training, jealousy, poor communication, poor storage of information and poor consultation strategies.

Each of the barriers highlighted will have an impact on the KM success factors. For instance, lack of regular professional training implies that employees are not being kept up-to-date and that they are not improving their skills. These factors would affect employees' performance. The lack of KM awareness and motivating factors would make it difficult for employees to engage in meaningful knowledge sharing activities and increase knowledge hoarding tendencies.

Poor work relationships, jealousy and limited time for interaction result in a culture that is not conducive to effective KM practices. In addition, poor communication, poor consultation strategies and poor storage of information can lead to an organisational culture that affects KM initiatives. The organisational culture, hierarchical structures and poor motivation of employees further also reinforces an environment in the libraries that is not KM supportive.

Although lack of appropriate technology was mentioned as one of the barriers at the KCN library, it is not necessarily the case since the library has sufficient computers, an online library management system, is linked to the University Intranet and the Internet. What is lacking is the expertise to utilise the available technology for the benefit of the library.

8.2.11 KM maturity levels in the libraries

As was mentioned in section 8.2 it can be concluded, that the libraries investigated are at level one of the generic levels of KM maturity proposed by Kulkarni and St. Louis (2003). According to Kulkami and St. Louis (2003), organisations at level one are at the entry level of KM maturity and KM activities are encouraged only to a limited extent. The following are examples of instances where KM was seen to be encouraged in the libraries:

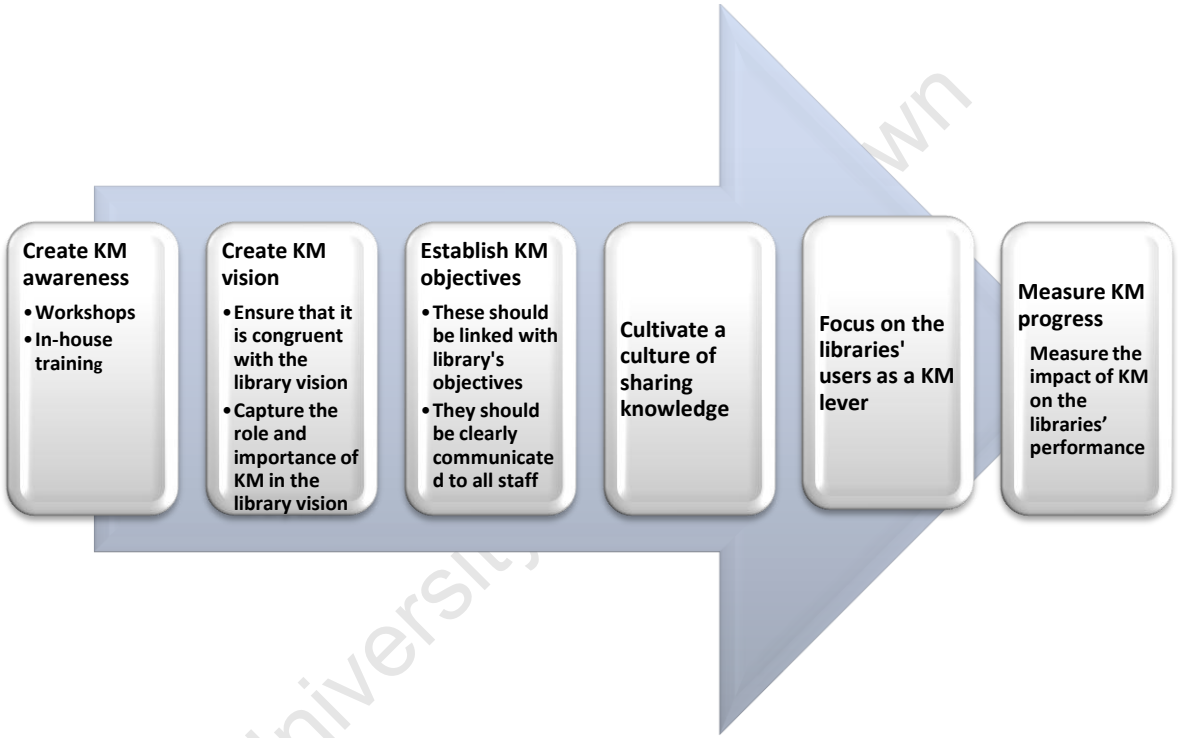
- Employees in the libraries belong to at least one group for professional development (cf. section 8.2.1)
- Information and knowledge collection and use are encouraged in the libraries (cf. section 8.2.2)
- The libraries provide physical space for information and knowledge sharing and the employees in the libraries are generally willing to share information and knowledge despite the various barriers to effective sharing (cf. section 8.2.3)
- Employees capture and use some library user information as well as information from other departments (cf. section 8.2.5)
- The libraries use e-mail and the intranet for information and knowledge sharing (cf. section 8.2.6).

It is argued that obtaining a level one KM maturity ranking is not satisfactory if the libraries want to effectively leverage both explicit and tacit knowledge to improve service delivery and operational effectiveness. Clearly, the libraries need to improve their KM maturity levels

but they can only do this with a clear focus on what they expect to achieve. A strategy to improve the maturity levels is thus required. The following section suggests a road map that the libraries could follow to achieve effective KM implementation and thereby improve their KM maturity levels.

8.3 Suggested road map to implement KM in the libraries

Figure 8.1: KM implementation road map



In the following sections each aspect will be discussed in greater detail.

8.3.1 Creating KM awareness

Creating KM awareness would be an important first step for the libraries to effectively implement KM. It was clear in both libraries that some of the employees did not regard themselves as assets to the libraries and confused their knowledge with that contained in the library collection. Creating awareness could for example include workshops where experts in KM could take the employees on a journey through KM by giving them practical examples of

organisations that have implemented KM successfully. Regular in-house training of employees can reinforce knowledge gained from these workshops. Furthermore, visits to other organisations where KM has successfully been implemented can serve as a good exemplar of the benefits of engaging in a KM programme. Creating KM awareness would thus provide the impetus among the employees to employ the new ideas they have learned. This however should be integrated with the libraries' activities. It therefore requires formulation of a KM vision for the libraries that is congruent with the libraries' overall vision.

8.3.2 Creating a KM vision

In theory, top management formulates a vision for an organisation; it is through this vision that it relays its insights to the subordinates. It is however this researcher's view that the development of a vision should be an inclusive process and that the opinions regarding the vision of the libraries investigated should be solicited from all the workers, particularly since the libraries are small. The KM vision should be developed in congruence with the overall vision and likewise the importance and role of KM should be captured in the overall vision. Because a mission and consequently objectives are developed from the vision, the importance of KM and KM activities would also be reflected in the libraries' objectives. A vision that is developed in this way would ensure that the libraries take cognisance of KM and make use of it to improve their services.

8.3.3 Establish KM objectives

KM objectives will logically be derived from the vision and it is important that the objectives are as clear and measurable as possible. Furthermore, the objectives should be integrated with library objectives to avoid the trap of pursuing two sets of objectives and to ensure that KM makes a significant contribution towards the achievement of library objectives. In the process of formulating objectives, top management should involve all employees, as they are the ones

who will actually do the work. This will help them to take ownership of the programmes that are developed to achieve the objectives. Furthermore, there is need to establish milestones that will indicate steps towards achieving the objectives.

A clear outline and communication of objectives would help all employees to be aware of their role in achieving the objectives. Furthermore, establishing milestones would help employees realise whether they are moving in the right direction towards achieving library objectives. Library objectives could for example typically be to collect, store and use information about users and the related milestones could include a database of user profiles, maintaining statistics on books, journals and other library materials used, and of users present in the library during a given period.

8.3.4 Cultivate a KM culture

The three previous steps outlined are the beginning of establishing a KM culture. Developing a KM culture requires collaboration between the libraries' leadership and the other employees. For example, as suggested in the previous sections, if top management involves subordinates in important matters concerning the library such as setting objectives, employees will develop a sense of belonging and a feeling that their presence is important. Such involvement of employees will improve trust and interaction between management and employees.

A further practical way to encourage involvement by all employees would be by creating teams and requiring them to find practical solutions to problems that exist in the library, for example asking two or three employees to investigate problems users have with using a particular library resource (e.g. special collections, audiovisual material, electronic resources, etc.). In this case, employees are encouraged to create knowledge through the investigation and at the same time, they are encouraged to collaborate and share knowledge. Employees

can also be encouraged to document procedures followed in performing particular tasks. For example, employees on the reference desk can be asked to record what they do to ensure that users get the information they need. Although such a procedure may not work for all situations, it would still act as a guide to someone new to the desk.

It is particularly important to encourage individuals to share their knowledge. For example, when individuals attend a workshop, they should report and provide feedback or teach others what they learned from the workshop. Employees should also be encouraged to share what they have learned from performing a particular task such as an investigation mentioned previously. This means that the libraries should provide the space where employees can interact during formal or informal meetings. Such a space could be, for instance, a room that is equipped with presentation equipment such as projectors and computers.

8.3.5 Focus on a KM lever: the libraries' users

When implementing KM it is important to focus on one of the levers (see section 4). The lever, which it is suggested the libraries can focus on at these early stages, is the 'customer' lever. Since the "customers" of a library are its users, the libraries should focus on managing user knowledge. User knowledge includes user profiles, patterns of library collection use, information needs, preferences and expectations. In Bunda library, knowledge about users is captured though not fully. Statistics on books borrowed for example are useful but without knowing which titles are being mostly borrowed and by who is not very helpful. In Bunda College therefore, there is need for adding parameters to the user knowledge captured. One way of doing this is to make use of the library management system for circulating library materials. This is already done in KCN library. Both libraries though should go a step further to download and analyse the statistics generated by the system over a specified period of time, say quarterly or each semester, to identify patterns in use of materials.

The libraries should carry out user satisfaction surveys regarding the services that are offered to gauge the gap between user expectations and the libraries' services. These surveys can be conducted every two years for example. What is more, the surveys will reveal certain issues requiring further investigation and library staff can be assigned to investigate these issues depending on their capabilities. To avoid falling into the trap of losing contact with their users, the libraries should encourage users to always register complaints or give suggestions regarding the services. This can be achieved by strategically placing a suggestion box in the library or including a complaint or query form on the libraries' websites. Employees should also be encouraged to take note of issues that users may bring up during informal conversations.

All this can be achieved if employees are aware of KM and the role they play in making KM work for the library. This step therefore, is largely dependent on steps one to four. If done properly the libraries can leverage the knowledge gained from the suggested processes by acting intelligently and improving their services. However, the libraries can only be aware of their progress by putting in place measures to indicate the same. The next step that should be taken therefore is to establish KM measures.

8.3.6 Measuring KM

As has been suggested, the focus of the KM initiative in the libraries should be user knowledge and it is important that the parameters set should measure the progress in achieving this goal. This means that the best way to measure the impact of KM on the libraries' performance would be to learn from the users. User satisfaction can be inferred from user satisfaction surveys. The surveys therefore, would serve the purposes of gathering user knowledge as well as measuring the effectiveness of KM activities. Other activities however, would not necessarily have a direct impact on the users experience and these will require measures that are directly related to the activities. Measurement of KM should be

done periodically to monitor KM activities and progress. Measurement will thus establish whether objectives indicated in step three are achieved and the progress of KM maturity in the libraries.

8.4 Summary of findings according to the study's research questions

In chapter one, it was argued that KM is a necessary tool for libraries as they operate in an ever changing environment which requires timely and effective response. The question was asked why academic libraries should implement knowledge management seeing that they are non-profit making organisations and knowledge management is generally employed in organisations to gain a competitive edge. It was however asserted that it is necessary for the libraries to remain relevant in the 21st century and to meet the changing needs of their users. It was therefore concluded that KM in academic libraries should be associated with improvement of service delivery rather than the usual perception of profit making. KM in this regard, should thus be integrated with existing library activities to ensure its strategic impact on achievement of library objectives.

The outcome of the research project with reference to the research questions stated in chapter one can be summarised as follows:

Research question 1: Exploring the role of knowledge management in academic libraries:

It is concluded that although the academic libraries investigated are service delivery orientated, KM is considered to be as important and crucial to operational effectiveness as in profit–motivated organisations. It is therefore necessary to consider carefully how to implement KM in the libraries and to integrate it seamlessly with the libraries' objectives. A clearly formulated KM strategy is thus required that will ensure the optimal use of the intangible assets of the library. The ever-changing environment that academic librarians

operate in makes it imperative that they should be involved in research and development activities and be lifelong learners. Furthermore, they should '*know what they know'* and get what they '*need to know'* to serve library users better.

Research question 2: Finding out the Knowledge Management activities in the libraries of Bunda College and KCN:

It was found that the libraries were at the very basic, first KM maturity level. While knowledge sharing, collection and use was evident, knowledge creation and storage were barely determinable. Furthermore, knowledge sharing, collection and use were practised at a minimal level. For instance, knowledge sharing was done at an informal oral level; knowledge collection was limited to statistics on the use of books without utilising these in any significant way.

Research question 3: Identifying knowledge related assets in the libraries:

The knowledge related assets in the libraries were summarised in table 7.1 and these included managerial and non-managerial assets. It should be noted that these are not exhaustive as it is possible that other assets were not revealed during the survey. However, it is important that the libraries ensure that these are made available to those who need them at the right time in a convenient format.

Research question 4: Knowledge needs of the staff in the libraries:

It was found that employees in the libraries need knowledge specific to their work-related tasks to improve their performance. Some of the needs can be addressed by providing on-the-job training while others can be addressed by sending employees for further training and education. On-the-job training would not require financial resources while further studies would.

Research question 5: Differences and similarities in Information and Knowledge Management practices in the libraries:

The study revealed that the differences in KM practices between the two libraries were not significant. In most aspects except KM processes and organisational structure, the libraries were at the same level of maturity. Although both libraries were at a low level of maturity on KM processes, Bunda College library's level was higher than KCN library's. On organisational structure, KCN library's level was higher than Bunda College library's. The differences on organisational structure can be a result of the differences in the sizes of the libraries. KCN library is smaller than Bunda College library resulting in the hierarchical structure to be less apparent in KCN than in Bunda.

Research question 6: Suggesting possible ways of utilising existing knowledge in the libraries:

In chapter seven the short comings of the KM practices were noted and possible ways of improving them were suggested at the beginning of chapter eight. A road map to effectively implement KM at both libraries was provided to guide the libraries in implementing KM.

8.5 Limitations of the study

The following limitations to the study are acknowledged:

- The results of the study may not be generalised to other organisations because of the case study method approach that was followed Modifications might be required if conducted in a different environment
- The model that was used to carry out the maturity level assessment was limited in the number of success factors used. The factors were selected to match the academic library environment and as such, its modification might be necessary when conducting an audit of an organisation other than an academic library.

8.6 Recommendations for future research

Future research may focus on a longitudinal study in the Bunda College and KCN libraries to determine their progress towards higher levels of KM maturity. The same KM maturity assessment model may be used in the study. It would also be important to determine the level of KM maturity in the other college libraries in the University of Malawi. A strategy of implementing KM in the network of the University of Malawi libraries therefore can be the focus of such a study.

8.7 Conclusion

The dissertation concludes that implementing KM in an organisation is a process that requires careful consideration of various factors affecting KM. As it brings change to the way people do things, change management should be considered alongside KM implementation. KM in academic libraries, like other organisations, should be an ongoing process if it is to work. Furthermore, all workers should embrace it as a method of enabling them and the organisation to act intelligently. It is therefore argued that in implementing KM in academic libraries, caution should be taken to ensure that employees understand the concept of KM and its implications on the performance of both individuals and the organisation. Because library professionals are by nature involved with organising information, they are more likely to confuse management of their own knowledge with managing information for users. Creating KM awareness therefore, is a critical step towards implementing KM in libraries.

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Appendix A: Questionnaire

Questionnaire on knowledge management in academic libraries

Dear respondent,

This questionnaire therefore, has been designed to measure the status of knowledge management in the two libraries. It focuses on how you as a library employee make use of information and knowledge to carry out your duties. It is not about how you organise information for library users. The results will help to develop a strategy for you to use the available knowledge resources to improve your work and the library's service. It is important that you provide as full and detailed answers to the questions asked.

The information that you provide shall only be used for the sole purpose mentioned and you can be assured of anonymity. Please note that you are not required to indicate your name on the questionnaire. You may be asked to participate in an interview following the questionnaire study.

Thank you,

Trevor Namondwe

I. Respondent's profile:

Position	
Job description	
E-mail address	
Telephone number	
Position of immediate superior	

II. Knowledge management in the libraries

A. Employee motivation and competencies

1. What is your contribution to the achievement of library objectives?
   .....
   .....

2. Do you think the library values you? Please explain.
   .....
   .....

3. Do you belong to any group for professional development or networking? If yes, mention the group.
   .....
   .....

4. Whom do you most frequently communicate with to obtain the information / knowledge you need? Please list five most important persons inside or outside the library. If outside the library, mention the person's organisation.

.....
.....
.....

Please rate the following statements on a 5-point scale as follows:

1=strongly disagree, 2= disagree, 3= neither disagree nor agree, 4= agree, 5= strongly agree

	1	2	3	4	5
B. Leadership					
5. The library has a vision on the strategic importance of information/knowledge for achieving library objectives. This is clearly outlined and communicated to all staff.					
6. Management encourages knowledge creation, collection and use					
7. Management encourages information / knowledge sharing.					
C. Culture					
8. There is mutual trust among employees and between employees and library management					
9. There is transparency about changes in the library (activities, policies, plans)					
10. Information / knowledge sharing is generally practiced in the library					
11. The library provides the physical space where knowledge can be exchanged and issues discussed					
D. Structure					
12. The library has a flat organisational structure that encourages employees to take their own initiative to achieve library goals					
13. Team work is encouraged in the library					
14. Specific knowledge management roles are defined and responsibilities are allocated					
E. Processes					
15. Employees in the library have knowledge profiles outlining their competencies and these are accessible to all.					
16. Employees are encouraged to record the procedures they follow in carrying out their job tasks and these are captured in a database					
17. There are incentives for knowledge and information sharing					
18. Library user information is captured, stored and used for improvement of library services					
19. Information and knowledge from college meetings is captured, stored and used for improvement of library services					

F. Technology

1	2	3	4	5

20. The library uses social networking tools such as blogs, discussion forums, wikis and instant messaging to support communication, knowledge creation and exchange
21. The library uses the following tools
    a. E-mail
    b. Intranet
    c. Shared drive

G. Measures

22. Knowledge management practices are monitored and evaluated as part of the performance assessment of library staff.

H. Information/ knowledge sources

23. List the specific categories of information / knowledge you use to do your job (Skills, rules, procedures etc.). Please rate the value and the risk of losing these on the scale 1-5.

Value: 1=not important, 5=very important; Risk :1=very low, 5=very high

Knowledge/information category	Value						Risk of losing				
	1	2	3	4	5		1	2	3	4	5

24. Which sources do you use to obtain the information / knowledge? (e.g. colleagues, Internet etc.). Please rate the importance of the sources on a scale 1-5

1-not important, 5-very important

Source	Value				
	1	2	3	4	5

I. Information / Knowledge needs

25. What are the types of information / knowledge that you will need as a daily part of your job in the short and long terms?

Period when needed	Type of information / knowledge
Short term (1-2 years)	
Long term (3-5 years)	

26. Beside yourself, who else might need this knowledge?
    .....
    .....

27. What knowledge / information resources in your environment are scarce and where else could they be found?
    .....
    .....

28. Can you indicate instances where information / knowledge essential to your work was not readily available?
    .....
    .....

29. What do you do when you are not able to find the information / knowledge required to complete your tasks?
    .....
    .....

J. Other questions

30. What mechanisms might be helpful for encouraging information / knowledge sharing and transfer in the library?
    .....
    .....

31. Which aspects of the library seem to provide barriers to effective knowledge management? (i.e., what constraints impede knowledge sharing and transfer?)
    .....
    .....
    .....

End of questionnaire

Thank you

Appendix B: Interview schedule

Guiding questions for individual interviews

A. Employee motivation and competencies

1. With whom do you most frequently communicate?
2. Do you trust your colleagues?
3. Do you trust library management?

B. Leadership

4. Does your library have a vision?
5. Does library management encourage information/knowledge creation, collection and use?
6. Is knowledge sharing encouraged in the library?

C. Culture

7. Do you think knowledge sharing is important?
8. How do you share knowledge in the library?
9. Are there any rewards for knowledge sharing?
10. What could be done to improve knowledge sharing in the library?

D. KM processes

11. How do you capture, store and use knowledge that is generated within the library?
12. How do you capture, store and use knowledge from other departments?
13. How do you capture, store and use knowledge from college meetings?

E. Information and knowledge needs

14. What knowledge resources are scarce in your environment?
15. Are there any instances when knowledge essential to your work was not readily available?

F. Information and Knowledge sharing tools

16. What tools can be used to encourage information seeking?
17. What other tools can be used to share knowledge?

G. Any comments, suggestions or questions regarding the study

Appendix C: Covering Letter

Dear respondent,

I am a student pursuing a Masters in Library and Information Science at the University of Cape Town. To complete the Masters, I am expected to conduct a study on an approved topic. My topic is: Implementing knowledge in academic libraries: a comparative case study of the Bunda College of Agriculture and Kamuzu College of Nursing libraries.

This questionnaire therefore, has been designed to measure the status of knowledge management in the two libraries. It focuses on how you as a library employee make use of information and knowledge to carry out your duties. It is not about how you organise information for library users. The results will help to develop a strategy for you to use the available knowledge resources to improve your work and the library's service. It is important that you provide as full and detailed answers to the questions asked.

The information that you provide shall only be used for the purposes mentioned and you can be assured of anonymity. Please note that you are not required to indicate your name on the questionnaire. You may be asked to participate in an interview following the questionnaire study.

Thank you.

Trevor Namondwe