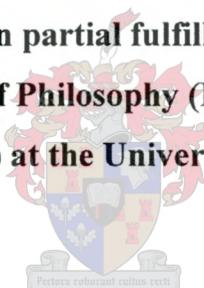


**THE KNOWLEDGE AUDIT - FROM INFORMATION
MANAGEMENT TO KNOWLEDGE MANAGEMENT: A CASE
STUDY OF A PROVINCIAL LIBRARY SERVICE**

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**Assignment submitted in partial fulfillment of the requirements for
the degree of Master of Philosophy (Information and Knowledge
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Declaration

I, the undersigned, hereby declare that the work contained in this assignment is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

Abstract

There is a strong pressure for organizations to attaining, maintaining and improving knowledge standards for sustained competitive strategic advantage. This assignment examines the status of knowledge and knowledge management (KM) practices at the Provincial Library Services (PLIS). I approached the topic by collecting data relevant to the management of information and knowledge and benefits of the KM activities using the following methods:

A review of literature and research: - addressing the paucity of literature and research that is both current and directly relevant to libraries was one of the motivating factors behind the study; analysis of key documents and information systems; a questionnaire was distributed to the PLIS personnel; informal interviews and observations.

The results seem to indicate that PLIS has a knowledge infrastructure and a technology infrastructure. This is apparent in its knowledge programmes, e-mail system, web page, library management system (PROLIB), and limited access to the Internet. Staff has some fairly basic knowledge and information needs that must be addressed. Few knowledge contents should be established. The baseline information provides a foundation for more coordination; recognition of the importance and enhancement of its KM related activities. KM activities should focus on individual capabilities. Recommendations are articulated in terms of a proposed KM strategy.

It became evident that success of knowledge management depends on an environment, which is conducive to conversion of individual knowledge to organizational knowledge, the value to which employees place on knowledge and their attitude towards KM. Moreover, indicators of success and evidence of effectiveness should take the measuring criteria beyond a checklist of policies and strategies, procedures and processes, systems, activities but professional competence, commitment, benchmarking and adoption of best practices for attainment of KM goals. Important to note, is the reality that a KM activity for PLIS has to take broader transformation imperatives into account.

Keywords

Knowledge –“Intellectual capital”, Organizational Knowledge, Competitive Advantage, Innovation, Knowledge Management, Knowledge Audits, Provincial Library Service

Opsomming

Daar word sterk druk geplaas op organisasies om kennis te bekom, te behou en te verbeter vir volgehoue mededingende strategiese voorsprong. Hierdie werstuk ondersoek die status van kennis en kennisbestuur- (Knowledge Management, KM) praktyke van die Provinsiale Biblioteekdiens. Ek het die onderwerp benader deur data te versamel wat relevant is tot die bestuur van inligting en kennis sowel as die voordele van KM aktiwiteite deur die volgende metodes te gebruik:

‘n Oorsig van literatuur en navorsing: - een van die faktore wat die studie gemotiveer het is om die beperkte beskikbare literatuur en navorsing wat op datum sowel as relevant tot biblioteke is aan te spreek; ‘n ontleding van die kern dokumente en inligtingsisteme; ‘n vraelys wat versprei is onder die personeel van die Provinsiale Biblioteekdiens; informele onderhoude en waarnemings.

Die resultate dui daarop dat die Provinsiale Biblioteekdiens ‘n kennis en tegnologiese infrastruktuur het. Dit blyk uit die kennisprogram, die e-pos sisteem, die Webtuiste, die biblioteekbestuursisteem (Prolib), en beperkte toegang tot die Internet. Personeel het basiese kennis en inligtingsbehoefte wat aangespreek moet word. Kennisinhoude moet daargestel word. Die basislyn inligting voorsien ‘n grondslag vir meer koördinasie; besef van die belangrikheid en die verbetering van die KM verwante aktiwiteite. KM aktiwiteite moet fokus op individuele vermoëns. Aanbevelings word uitgedruk in terme van ‘n voorgestelde KM strategie.

Dit het duidelik geword dat die sukses van kennisbestuur afhang van ‘n omgewing wat bevorderlik is vir die omskakeling van kennis van die individu na organisatoriese kennis, die waarde wat personeel heg aan kennis en hulle houding teenoor kennis bestuur. Aanwysings van sukses en bewys van effektiwiteit moet meetbare kriteria verder neem as ‘n lys van beleide en strategieë, prosedures en prosesse, sisteme en aktiwiteite maar moet professionele vermoëns toewyding “benchmarking” en gebruik van die beste praktyke vir die bereiking van KM doelwitte toepas. Dit is belangrik om te let op die realiteit dat ‘n KM aktiwiteit van die Provinsiale Biblioteekdiens wyer transformerende imperatiewe in ag moet neem.

Dedication

To my FAMILY

My Parents: Nontando and Hlumelo,

My kids Lithalomso Zizo, Sihle Nandisa and Sisipo Masomelele,

My three sisters, two brothers, nephews and nieces.

You are the strength beneath my wings - for that

I LOVE YOU!!!!

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To Lithalomso Zizo Gogela who was born during the writing of this thesis, the joy she brought and her constant compromise when her mom has to leave to do research is also gratefully acknowledged. Special thanks are also due to my supervisor, Dr Martin van der Walt, for his careful critical comments and advice for revision of the penultimate draft of the complete thesis. He has added richness and rigor to this work, for that I THANK YOU.

Acknowledgements always seem inadequate recognition and recompense, but are particularly true in the case of those due to my family, without your support, I simply could not have written this work.

Table of Contents

Declaration.....2
Opsomming.....3
Abstract.....4
Dedication.....5
Acknowledgement.....5
Figure 1: No of Respondents per position.....59

Chapter One: Introducing the study

1.1 Introduction and Rationale of the Study.....8
 1.2 Research Problem / Key assumptions Guiding the Research.....13
 1.3 Aims of the Thesis.....13
 1.4 Distinction of Terms.....14
 1.5 Overview of Research Design and Methods.....18
 1.6 Overview of chapters.....20

Chapter Two: Brief Overview of Relevant Literature

2.1 Views about Knowledge Audits.....22
 2.1.1 Definition of Terms.....23
 2.1.2 Objectives.....26
 2.1.3 Outputs of knowledge audits.....27
 2.1.4 Steps or Models.....28
 2.1.5 The knowledge analysis methods.....31
 2.1.6 Knowledge audit questions.....31
 2.1.7 Knowledge audit report.....33

Chapter Three: Knowledge Audits: General Rules of Thumb

3.1 Knowledge and Knowledge Management.....35
 3.1.1 What is Knowledge35
 3.1.2 Characteristics of Knowledge.....36
 3.1.3 Knowledge Conversion.....39
 3.1.4 What is Knowledge Management.....41
 3.1.5 Primary Factors of Knowledge Management.....42
 3.1.6 Management of Knowledge Processes.....47
 3.2 Conducting a Knowledge Audit52
 3.3 Summary.....55

Chapter Four:	A Case Study of the Provincial Library and Information Services	
4.1	Background of the Organization.....	56
4.2	A Knowledge Audit Methodology.....	59
4.3	Analysis of Results and Discussions.....	59
4.3.1	How Research Methods were applied in the Context of this Study.....	59
4.3.2	Background of Respondents.....	60
4.3.3	Perceptions of KM.....	61
4.3.4	General Status of KM Practices	61
4.3.5	Responding to Other Research Questions.....	70
4.3.5.1	Categories of Knowledge Needs	70
4.3.5.2	Categories of Knowledge Sources.....	71
4.3.5.3	PLIS Clients.....	72
4.3.5.4	Outsourced jobs in the last five years.....	72
4.3.5.5	Existing Knowledge / Knowledge inventory.....	73
4.3.6	Knowledge Needs/ content required.....	73
4.3.7	Knowledge Flows.....	74
Chapter Five:Conclusions, Recommendations and Limitations		
5.1	Recommendations.....	76
5.2	Conclusion.....	81
References.....		83
Appendix A: Information Questionnaire.....		89
Appendix B: Interview Questions.....		93

Chapter One

Introducing the Study

1.1 Introduction and Rationale of the Study

Conventional management thinking and practice are being challenged at all levels: from the procedural and operational levels to policy, regulatory and strategic levels. Managers today face many options and multiple possible outcomes and must learn, unlearn, adapt and reframe if they are to succeed and to sustain that success because the alternative unfortunately, is extinction (Wick & Leon quoted in April and Azadi, 2004). Focus on knowledge is not a management-consulting fad, the shift is dynamic and fundamental. Knowledge economy means that new models of exchange and reward are developing in the market place e.g. the means of production and distribution of goods and services. Knowledge has overtaken the traditional mix of land, labor and capital as engine of wealth in modern economies. This phenomenon has been hastened by the symbiotic impacts of globalization and information communication technologies (ICTs)

The focus of attention has shifted from outside the organization to inside since the emergence of the concepts of distinctive competence, core competence and core key capabilities. It follows then that the focus is on understanding the enablers of capabilities; systems; work processes; organizational structure, and culture; and resource combinations. This is in accordance with resource-based paradigm of Amit and Schoemaker (1993), which places a high value on the distribution and often-intangible competencies and capabilities of the organization embodied in its human resources, technologies, products, services and organizational routines. Therefore in today's networked and digital world, knowledge -what people know and how they use what they know – is what makes an organization succeed or fail. However, it should be taken into consideration that the dynamic environment constantly calls for the generation of new resources to guarantee sustainability. Hence sustainability is seen as a journey and not a destination. An embrace of innovation, change and knowledge management (KM) is vital to the success of any business in today's dynamic business environment.

April and Izadi (2004) explicitly acknowledge that the way in which the private sector offers information and knowledge-based services to its customers has created in these customers, who are also citizens, the same expectations from public service. Hence the public service organizations as trusted holders of citizens' information, should act intelligently in providing their services and projects. People are the organization's intangible assets; managing appropriately these assets remains a challenge. Therefore, organizations are expected to seek ways to capture and harness the individual and collective knowledge available to them to change the basis of competition. It is no doubt that advanced knowledge help organizations differentiate themselves while innovative knowledge is what organizations require to dominate an industry by changing the basis for competition. With this growing importance of knowledge as a lever of business strategy, it is essential that the Provincial Library Service (PLIS) know how best to develop and apply knowledge-based strategies in order to achieve bottom line business benefits. Knowledge management (KM) strategies are seldom similar because people are different and these strategies also vary according to the culture of the societies and organizations in which they are located.

KM is also known by terms such as organizational learning, organizational memory, collective intelligence and expertise management. Frequently mentioned in the current KM literature is the requirement for knowledge audits at the launch of any knowledge management initiative. Surprisingly, very little of the literature investigates the knowledge audits topic beyond the most superficial discussion of what they might entail. This means that despite a plethora of the content on knowledge management, little on actual knowledge audit methodologies that might be used are publicly available. These methodologies can only be acquired for a fee from consulting firms that own proprietary knowledge audit methodologies (Allweyer, in Schwikkard and Du Toit, 2004). However, regardless of the few published accounts that precisely declare how to execute a standard knowledge management audit, insight can be extracted from the existing literature to develop a basis for the creation of customized knowledge audits for organizations. This suggests that there is no template that exists for making knowledge management easy because it ultimately requires complex interrelated changes in organizational culture and systems (Schwikkard and Du Toit, 2004).

Indicated below is few of the long list of drivers for performing knowledge audits in organizations prior to the implementation of a KM initiative. One is the fact that organizations are suffering from information overload/info glut on one hand and lack of knowledge on the other. They find it difficult to maintain a general picture of internal and external data, information, skills and experience and this lack of transparency lead to inefficiency, uninformed decisions and duplication. Another problem is that valuable knowledge assets go unnoticed and are therefore not used as managers may not know that they have internal experts on a given subject or area of work. This leads to a possibility of not reusing the existing knowledge - but instead reinvent the wheel wasting time and money; or not using internal employees - but instead hiring much more expensive external consultants (April and Izadi, 2004). Compounding this problem organizations find it difficult to quickly find key information and knowledge needed to make decisions because of the availability of information in a multitude of formats and exponential growth in the number of products available. This proliferation of information products and delivery methods, useful sources of information and knowledge are frequently stumbled across by accident. Gartner (Jacobs, 2002) refers to lack of access to knowledge as 'infofamine'. The state of the information overload and knowledge poverty is equally frustrating and counter productive.

Some organizations are structured in such a way that their units or departments operate independently of one another and as a result of this lack of integration duplication of information gathering activities takes place. Other organizations engage in what Henczel (2000) calls 'information overkill' buying of any information system or information/knowledge management investments, which leads to the *IT-Productivity Paradox*. The situation of looking for knowledge management products without first having established an operational foundation and process for management of intellectual assets is therefore an invitation to failure. This kind of hype about technology tends to hide the key message of the knowledge management movement that people, not technology, solve information and KM problems (Cloete and Snyman, 2004). Knowledge management systems are merely the enablers as they unlock internally and external personalized information/knowledge needed to make informed decisions.

Effective KM must ensure sufficient internal and external transparency and help individual employees locate what they need. As mentioned above, there is no generic model for developing a knowledge management strategy as each organization has unique needs that must be identified and understood (Henczel, 2000). This necessitates a higher level of evaluation and control to ensure that quality information and knowledge is available to those who need it. Organizations, which embark on knowledge management programmes without an understanding of why their knowledge assets are important, are prone to failure. Organizations need to be in a position to make informed decisions about what knowledge they need to manage to avoid managing everything which is significant and not. They also *need not* spend more time benchmarking according to what others do, as this is a prescription for mediocrity.

Therefore, in order to succeed, organizations have to take a comprehensive approach to managing knowledge, including people, technology and organizational processes, to secure the greatest benefits for their investments (Staples *et al* 2001). Human resources contribute to a sustained competitive advantage through facilitating the development of competencies that are organization specific, produce complex social relationships, are embedded in the organization's history and culture, and generate tacit organizational knowledge. Success also depends on an environment, which is conducive to conversion of individual knowledge to organizational knowledge, the value which employees place on knowledge and their attitude towards knowledge management within the organization.

Such an endeavor also requires senior leadership's support and commitment of resources to sustain and direct activities, thereby ensuring alignment with the organization's vision, strategy and business objectives. In essence, a knowledge audit provides an evidence-based assessment of where the organization needs to focus its knowledge management efforts. A knowledge audit assesses potential stores of knowledge i.e. finding out where knowledge is created, where it is already existing, and where it is needed to support decisions and actions. By discovering this, it is possible to find the most effective methods of storage and dissemination (Liebowitz *et al*, 1999). Henczel (2000) convincingly asserts that knowledge audits form the basis for initial investigations into defining an organization's wide knowledge strategy and identifying relevant solutions to the organizational workforce. A good

knowledge strategy is based upon the values and vision of a given individual/team/organization. It is not something that can be sold in a box, fixed with a technology tool or learned from another company.

For many years, libraries have been promoting good information management¹ and information audits as a means of identifying and meeting the information needs of an organization. However, the emphasis has been on explicit knowledge. For this reason they used the discipline of managing explicit knowledge in information resource management (IRM). IRM is defined as the application of conventional management processes to information, with the aim of maximizing its contribution to the organization's objectives (April and Izadi, 2004). The role of the information officer has evolved beyond the old task of librarianship. The information experts' technological skills in categorization, search, retrieval and understanding of information needs have improved their services and roles. PLIS is no exception. Good information practice is seen as the essential prerequisite to knowledge management; hence its strategies should be based on the information/knowledge resources and the people who create the knowledge. The focus will be on both managing of explicit and tacit knowledge. In a similar vein, Streatfield and Wilson (1999) assert that knowledge management encompasses both the management of information/ knowledge and management of people. However, they go on saying that knowledge cannot be managed directly – only the information about the knowledge possessed by people in organizations can be managed.

There is a wide variety of approaches to conducting a knowledge audit with varying levels of coverage and detail. Methodologically, the research will be designed as a survey or audit of knowledge stocks, flows and efficiency, i.e. what knowledge is existing, needed, missing, applied and contained to help the PLIS achieve its goals. Moreover, it will also briefly give an account of the business needs assessment and cultural assessment aspects of the knowledge audit. Such an audit assesses the readiness of an organization to embark on knowledge-based strategy, the status of its KM practices and opportunities for the further exploitation of knowledge resources and assets.

¹ Acquisition, organizing, storing, distribution of information to right users and locations, and use of information

1.2 Research Problem

In the discussion so far, it becomes evident that it makes no sense for an organization to start a knowledge sharing initiative until it knows what it knows, i.e. what knowledge it has, who has it and how it flows (or doesn't) through the organization. A better understanding and control of how it gains, stores, retrieves shares and uses information and knowledge (from either internal or external sources) helps it gain a valuable insight about how it can better use these assets. Hence the research problem will be:

How can the Provincial Library Service (PLIS) leverage its knowledge assets to gain/manage its sustainable competitive and strategic advantages?

1.3 Aims of the Thesis

Organizations are in the throes of implementing knowledge management (KM) strategies. They are pursuing this initiative with the stated goal of generating, facilitating the transfer of, and improving access to the organizational information and knowledge (April and Izadi, 2004). Gartner Group (2000a) forecasted that by 2005, 75 percent of the global enterprises would require a significant transformation of governance, human resources, workplace policies and workforce planning in order to establish effective strategy for management of knowledge.

Literature stresses that the first step is to perform a knowledge audit (Gartner group, 2000c; Henczel, 2000; Liebowitz et al, 1999). Knowledge audits provide a practical way of getting to grips with knowing what the organization knows as they identify its knowledge needs; owners, users, uses and key attributes of the core knowledge assets as well as the gaps existing in its knowledge and blockages to the knowledge flows. Therefore knowledge audit constitutes a valuable component of the overarching knowledge management framework. The actual audit is aimed at what Eisenhart (2001) refers to as harvesting or gathering knowledge that is acquired across the organization so that it is readily available to all employees who need it. However, it should be noted that performing a knowledge audit does not guarantee a successful knowledge management initiative but it improves the chances that an organization is addressing the right problems and deploying the right resources to address them. In

essence knowledge audits determine whether the organization is socially ready to become a knowledge organization (Stevens, 2000).

The overall objective of the research is to identify the knowledge capabilities² of the Provincial Library Service (PLIS) to help it develop its information/knowledge base and on the basis of this, recommend how it should develop its knowledge strategy, to help it exploit its knowledge for strategic advantage. This exercise will provide a diagnosis of its current practices and benchmark for improvement. In order to develop a knowledge strategy that incorporates the management of both tacit and explicit knowledge, it is critical that knowledge creation process is understood and that understanding extends to the role of the people involved in the process. Moreover, an understanding of how the organization works, i.e. its structure, culture, objectives, processes, internal and external relationships, informal and formal communication networks is critical, as these are the characteristics that will determine the best way in which to manage knowledge of any organization. Knowledge audit is instrumental in defining the knowledge strategy for an organization as it can reveal the organization's needs strengths, weaknesses, opportunities, threats and risks.

The specific objectives are:

- To identify the information/knowledge needs/requirements³ of the organization for achievement of its goals as well as individual and team activities;
- To identify the knowledge resources and services currently provided to meet these needs;
- To identify the knowledge maps, stocks⁴ and flows within the organization and between organization and its external environment;
- To identify the blockages to the knowledge and communication flows, analyze gaps, duplications, inefficiencies and areas of over provision that enables the identification of where changes are necessary;
- Determine the most efficient and effective methods to store, facilitate access to and transfer of the knowledge.

² Knowledge acquisitions, creation, capture, storage, diffusion and transfer.

³ What is the existing knowledge, who need it and how it will be used and shared.

⁴ Knowledge locations/ownership/sources

1.4 Definition of Terms

It would seem wise to summarize some of the definitions of the key terms and concepts offered in the literature. Of direct relevance to the study are the concepts of knowledge, innovation, organizational knowledge, knowledge management, competitive advantage, knowledge goals and knowledge audit.

1.4.1 *Knowledge*

Knowledge is defined as “a fluid mix of framed experiences, values, contextual information, expert insight that provide a framework for evaluating and incorporating new experiences and information”. (Davenport and Prusak, 1998) It is an organic, intangible and ever changing entity. Intangibles are sources of invisible advantage. A person’s knowledge is accumulated over a lifetime but only part of it can be expressed. The value and importance of knowledge depends on its uses and applications as much as truthfulness or integrity.

1.4.2 *Organizational knowledge*

Organizational knowledge, its intellectual capital, is what people know about the organization – the personal skills, experience, and brainpower. When it is shared it becomes embedded in its documents, policies, repositories, routines, processes, practices and norms. Organizational knowledge is therefore both explicit: i.e. the information contained in policies, manuals of procedures, files, computer memories and databases; and tacit: i.e. the knowledge coming from deep understanding, intuition and sound judgment. Organizations function by using the organizational knowledge, which give them the ability to accomplish collective tasks that create value for its stakeholders. It is therefore the: know how, know who, know when, know where and know why. (April and Izadi, 2004). Knowledge and the way it is structured, utilized and transmitted varies from organization to organization, hence KM differs from organization to organization.

1.4.3 *Competitive Advantage*

Competitive advantage is an important objective of the KM. It exists in the extent to which organizations are to develop, manage and use their intellectual capital. The term is used to describe an increased profit as well as an increased market share and is sometimes related to quality. It is the creativity of employees coupled with the: documentation of, access to and use of the combined information of organization,

that permit growth and development of intellectual capital, which gives its competitive advantage. To meet this, organizations collect, analyze and disseminate timely, relevant and discrete marketplace information on competitors and broader business environment. This exercise is not different from environmental scanning that also presents the strategic implications of trends for the organization (Choo, 1995). It seems that competitive advantage can be achieved by collaboration.

1.4.4 Innovation

The term innovation correlates with creativity and knowledge. In organizations, it means development of the new competitive products and services as well as developing new procedures and processes that enhance an organizational capacity and increase the market share. It is therefore a component of a competitive advantage.

1.4.5 Knowledge management (KM)

A review of literature reveals numerous definitions of the knowledge management. KM will be defined in terms of what it strives to achieve, the purpose and techniques of information audits will be considered within this context. Broadbent (1993) says that knowledge management is about enhancing the use of organizational knowledge through sound practices of information management and organizational learning. In a similar vein, Choo (1995) assert that the purpose of KM is to harness the knowledge resources and knowledge capabilities of the organization in order to enable it to learn and adapt to its changing environment. Knowledge management process is about identifying the information and knowledge needs; acquisition, organizing and storing, creation, packaging, distribution, and application or reuse of the knowledge (Davenport, 1993). KM is associated to using the: knowledge, skills, experience and intelligence of employees, thus making an organization both a more profitable and fulfilling place (Myburgh, 2003). Darroch and McNaughton (2002) list few consequences of effective KM as follows:

It increases some kind of a competitive advantage; enhances performance; enables a firm to be more innovative; allows a firm to anticipate problems better; and enables a firm to analyze and evaluate information better

This implies that KM involves the strategic and effective combination of information management, information communication technologies, and human resources to create new and valuable knowledge and improved routes to its access.

1.4.6 *Knowledge goals*

April and Izadi (2004) offer three different types of knowledge goals as follows:

Normative / Behavioral knowledge goals: which are aimed at creating a knowledge-awareness organizational culture in which skills, experience and knowledge of individuals are shared and developed.

Strategic knowledge goals: which define the core information and knowledge of the organization, and specify the skills that will be needed and the kinds of expertise to be acquired in the future.

Operational knowledge goals: which are concerned with the implementation of knowledge management in daily organizational activities and ensure that the interventions are appropriate to the level at which they are made.

1.4.7 *Knowledge audit*

Knowledge audit is an in-depth analysis of an organization's information and knowledge requirements and delivery modes. It is therefore a systematic process through which an organization can understand its information and knowledge needs, what it knows and the information and knowledge flows as well as gaps. A knowledge audit consists of three major tasks, namely: knowledge inventory, knowledge flows and knowledge mapping.

Knowledge inventory is a kind of stock-take to identify and locate the knowledge assets or resources throughout the organization. It involves counting and categorizing of the organization's explicit and tacit knowledge.

Knowledge flows looks at how that knowledge moves around the organization – from where it is to where it is needed, i.e. how do people find the information they need, and how do they share the knowledge they have? It therefore looks at both the explicit and tacit knowledge and at people, processes and systems.

Knowledge map is a navigation aid to both explicit and tacit knowledge showing the importance and the relationships between the knowledge stores and dynamics. A knowledge map portrays the sources, the flows, constraints and sinks of knowledge within an organization.

1.5 Overview of Research Design and Methods

The research methodology was based on both a theoretical framework⁵ and an empirical investigation. Sources included articles of journals, academic books, websites, written case studies, etc. Applying the principles of information resource management (IRM) the research identified owners, users, use, and key attributes of the knowledge assets. IRM was therefore applied so that both explicit and tacit knowledge is properly classified and mapped. Factors such as age, status, geographic distribution, and institutional affiliation background seem to have a relationship with the perception of the organizational knowledge status.

An analysis of the business processes and critical management decision areas were gathered through a mixed or composite methodological approach that has no precedence. According to the research literature, whatever methodological approach is upheld, researchers are beholden to certain principles of quality and integrity in their research. Briefly, they must i) fully understand the research problem, ii) articulate the question clearly, and iii) be realistic in their data requirements and ask for only what is relevant. A number of methods adopted are listed and described below:

- (1) A review of the relevant literature and research to aid in compiling a list of important issues, theories that can be categorized and utilized in the frame of reference of the topic under investigation.
- (2) Analysis of the key documents e.g. plans, policies, process models and descriptions – to establish knowledge bases;
- (3) Analysis of current information systems
- (4) Interviews with staff representatives across the sections;
- (5) Information requirements questionnaires – to establish people's opinions and perceptions of the organizational culture, how knowledge is created and various other topics of interest;
- (6) Observations or Walk Throughs – tracing a document, transaction, or activity through a process from the beginning to the end in order to become familiar with the process (Shah *et al*, 1998). The people's behaviors and response were gauged;
- (7) The Internet/Intranet review;

⁵ text-based approach with the aim of analyzing and clarifying some concepts.

- (8) Analysis of the: basic knowledge, knowledge function, use requirements and knowledge flows 'social network' to:
- identify more detailed knowledge,
 - identify knowledge-sensitive areas,
 - identify how knowledge is used,
 - uncover the patterns of people's interaction; and
 - gain an overview of knowledge exchanges, losses or inputs of the task business processes or the whole organization (Wiig in Liebowitz *et al* , 1999).

1.5.1 Questionnaires

The questionnaire was used to collect an elementary level of qualitative data. Questionnaire-based knowledge surveys canvassed each employee's duties, responsibilities, names of the information and knowledge resources they use, and what makes a source particularly useful or non-useful. They also revealed what are their vital and most disposable information and knowledge sources (and why) plus their insight on unexpected sources of information and knowledge they have used.

The questionnaire shown in *Appendix A* helped elicit what the organization in question knows. The survey crossed departmental lines since perceptions and actions tend to evolve in diverging directions. As indicated above all levels were involved in order to reveal the experiences and perceptions of both executives and knowledge workers. It must be noted that follow up questions via interviews, focus groups and observation was accomplished after completion and analysis of this knowledge audit questionnaire. Data collected by open questions was analyzed generally using a common spreadsheet program.

1.5.2 Interviews

Interviews are little more verbal than administered questionnaires. However, they call for greater depth and involvement of responses and there is an opportunity to clarify any ambiguities. The semi-structured interview (see *Appendix B*) was administered to the following:

- Senior Management with the aim of understanding the strategic perspective on KM requirement of the organization;
- Middle management target group to identify knowledge related conditions that warrant management attention;

- Representative of various business divisions to understand the operational requirements of each entity.

The language used was English and confidentiality was maintained.

1.5.2 Observations

Literature defines an observation as a ‘direct surveillance’ or ‘the systematic description of an event, behaviors and artifacts in the social setting chosen for study’. I observed covertly to ensure the natural behaviors of participants. Observational cues were recorded and judiciously selected to verify the reliability of the findings. I have taken into consideration the commentator’s pain in stressing the importance of excluding any ‘value’ judgment or emotive language from the account.

1.6 Brief Overview of Chapters

This thesis contains five chapters including this one. This chapter has provided some insight in terms of the meaning of the KM spectrum through an: examination of the ‘knowledge audits, aims of study, problem areas and an overview of research methodology. It is argued that in a knowledge economy, organizations can only achieve and sustain their competitiveness through valuing their employees. At the launch of each knowledge management initiative, a knowledge audit must be performed.

Chapter two provides a review of literature on the subject of knowledge audits. It became evident that the knowledge audits are defined in terms of what they should focus on, their objectives and outputs. The chapter also focuses on the integrated strategic approach to knowledge audits, knowledge analysis methods, knowledge audit questions and knowledge audit report.

Chapter three describes the general rules of thumb for knowledge audits. It argues that competitiveness of organizations depends largely on their ability to create an environment conducive to conversion of individual knowledge to collective organizational knowledge. Effective and efficient KM depends on *culturally diverse people* (including their behaviors, values, interpersonal processes which defines the organizational culture) and *the context* (which include the tasks, structure, technology and measures). It is also shown that, although approaches to conducting

the knowledge audits vary in levels of coverage and details, most knowledge audits involves some uniform steps.

Chapter four provides a background of the Provincial Library Service under investigation, an analysis and discussion of results. Chapter five concludes the assignment with recommendations.

Chapter Two

Brief Overview of Relevant Literature

A number of studies on the theoretical approach to knowledge management have been conducted. There are many different perspectives in the field of knowledge management, but I strongly believe that they are not mutually exclusive. Robertson, 2002 in Schwikkard and du Toit (2004) contends that knowledge management approaches should be specifically tailored to the organization's environment, processes and goals. Gartner Group (2000b) advises that knowledge management should be based on the knowledge strategies that directly support the business objectives, which will be measured. Allweyer 1997 in Schwikkard and du Toit (2004) observes that an important prerequisite of knowledge management project is the description of the underlying business processes, i.e. focus on the knowledge-enabling business processes. Gartner Group (2000c) argues with Allweyer's assertion as it refers to this as the development of "process K-maps" which depicts a high level process and knowledge sources that knowledge management initiatives must maintain to support business processes. In a similar vein, Seeley (2002) argues that knowledge is created, exchanged, applied, refined and captured through the work that is naturally done by knowledge workers, whose activities and outputs are commonly referred to as business processes. To stress the mutual inclusiveness of technology and the human dimensions in knowledge management initiatives, April and Azadi (2004) eloquently assert that knowledge management embodies organizational processes that seek synergistic combination of data and information-processing capacity ('collect') and the creative and innovative capacity of human beings ('connect'). However, Cloete and Snyman (2004) maintain that KM is a multi-disciplined approach that integrates the business strategy, cultural values and work processes. All approaches have the same ultimate goal for an organization, which is to obtain a sustainable competitive advantage.

However, a comprehensive knowledge management initiative recognizes the strategy, measurement, policy, content, process, technology, and culture. It is interesting to note that in all the different definitions and foci, two of the key concepts in the field of knowledge management are those of tacit and explicit

knowledge. Explicit knowledge (also referred to formal, declarative or academic knowledge) is the knowledge we are familiar with as facts, theorems, procedures, proposition and law and is consciously known, can be stated and written down or codified. Conversely, tacit knowledge is highly personal, context specific, undiffused and practice-based. It is not contained in any formal code but resides in the heads of its 'owners' be it employees, customers or suppliers. Tacit knowledge is an essential part of the -'knowing how' and knowing why' and is essential to making knowledge useful (Nonaka and Takeuchi, 1995). As it is difficult to articulate and formalized, it must be inferred from actions and statements. It dictates its mode of use (Stenberg *et al* 1997 in Staples *et al*, 2001). Subjective insights, intuitions and hunches resulting from experience and developed skills, fall into this category of knowledge.

Although the literature assumes somewhat uniform types of organizational structures and ideals, knowledge management approaches vary across organizations. Studies by Gartner Group C2000a); Gartner Group (2000b); Gartner Group (2000c); Liebowitz *et al* (1999); Seeley (2002); Stevens (2000); Schwikkard and Du Toit (2004); April and Izadi (2004); Buchanan and Gibb (1998); Henczel (2000); Skyrme (1999); The Information Advisor (1997); Staples *et al* (2001); Skyrme Associates (2004) provide useful analysis on the issues related to knowledge audits and their application to various case studies.

2.1 Views of Knowledge Audits

April and Izadi (2004) also strongly maintain that doing an information/knowledge audit is *making internal knowledge visible*, which means determining the current status of knowledge within an organization, determining ways of accessing the information and knowledge environment 'i.e. system' and identifying particular kinds of information and knowledge, both internally and externally.

2.1.1 Definitions

Literature defines knowledge audits in terms of what they should focus on, objectives, benefits, outputs, etc. The traditional concept of an audit implies a counting, i.e. to check performance against a standard, as in financial auditing. However, knowledge audits not only count the knowledge assets but also examine

how they are used by whom and for what purpose. It is more of a qualitative evaluation, a sound investigation into an organization's knowledge 'health'.

According to Wiig in Liebowitz *et al*, (1999) a knowledge audit may identify an information glut or lack of information; lack of awareness of information elsewhere in the organization; an inability to keep abreast of relevant information; significant "reinventing the wheel"; common use of out-of-date information; and not knowing where to go for expertise in a specific area.

Gartner Group (2000c) asserts that:

An audit should identify the knowledge requirements of all processes that are heavily dependent on intellectual assets and that underlie the targeted business objectives. An audit also identifies the knowledge sources that can fulfill these knowledge requirements and the high-level business process steps where that knowledge must be applied.

Debenhan and Clark in Liebowitz *et al* (1999) see the knowledge audit as a planning document which provides a structural overview of a designated organization's knowledge as well as details of the qualitative and quantitative characteristics of individual chunks of knowledge within that designated section. The document also identifies the knowledge repositories in which those chunks reside. They (*ibid*) believe that knowledge audit is a measurement of the state of affairs of specific sections of the corporate knowledge.

Liebowitz *et al* (1999) define a knowledge audit as a tool that:

...assesses potential stores of knowledge. It is the first part of any knowledge management strategy. By discovering what knowledge is possessed, it is then possible to find the most effective method of storage and dissemination. It can then be used, as a basis for evaluating the extent to which change needs to be introduced to the organization. Part of the knowledge audit is capturing "tacit" knowledge. To do this some organizations use the information communication technologies and virtual teams including groupware, discussion databases, video conferencing, data conferencing, and team ware.

Dataware Technologies (1998) also believe strongly in the need to capture the tacit knowledge through knowledge audits. Some ways mentioned include among others, capturing it as metadata i.e. data about an explicit knowledge asset; creating skills databases, online communities of practice and searchable repositories of resumes or skills profiles. In addition to the stores, Liebowitz *et al* (Ibid) advise that in the knowledge audit one should also identify knowledge of people; feedback from the client base; look at flows, sources and constrictions; look for opportunities, assess the nature, relevance, usefulness, costs, timeliness and the accuracy of the data collected; and pay close attention to the context, the transformations and the assumptions along the way. Therefore the aim of KM practices is to also draw out the tacit knowledge people have, what they carry around with them, what they observe and learn from experience.

In his view, Steven (2000) asserts that what knowledge audits are, is subject to discussion. Whatever the scenarios/specifics are, the bottom line is that they should evaluate, in ascending order of difficulty, the state of the company's technology, and how well its processes support the knowledge sharing, the work styles and culture of its people. Henczel (2000) also argues that there is no universally accepted model for an information audit process because of the dramatically varying structures, natures and circumstances of the organizations in which they are conducted. Any organization shapes itself uniquely to its fundamental strategic drivers.

According to Dataware (1998), a productive knowledge audit need only concentrate on answering the following questions:

“in order to solve the targeted problem, what knowledge do I have, what knowledge is missing, who needs this knowledge and how will they use the knowledge?”

The most productive audit activities may be the identification of knowledge opportunities for connecting to customers, capturing the corporate memory (helping learning and preventing repeated errors), and compiling a directory of true experts and their interests (Liebowitz *et al*, 1999).

The key elements of the knowledge audit that stand out from the above definitions include identification of: the knowledge needs, existing knowledge, missing knowledge, effective methods of knowledge storage and dissemination and use of knowledge. This implies that the knowledge audit can clarify what knowledge various people really need and locate the best sources for it. It can also show what changes are needed in organizational and personal behaviors, business processes and enabling technology so that knowledge can be applied to improve a competitive advantage. The views also underscore the different phases of knowledge life cycle which constitute KM interrelated processes, namely: knowledge: conceptualization; codification; utilization; distribution and sharing; monitoring and reviewing. Knowledge audits therefore provide an in-depth analysis of an organization's information and knowledge requirements and delivery modes.

2.1.2 Objectives

The knowledge management pundits characterize the objectives of the knowledge audits from several angles. Dataware Technologies (1998) simply offer that the knowledge audit is conducted in order to solve the targeted business problem, what knowledge do we have, what knowledge is missing, who needs this knowledge and how will we use the knowledge?

Henczel (2000) mentions two objectives of a knowledge audit, namely:

- to identify the 'people' issues that impact on the knowledge creation, transfer and sharing, i.e. communication issues that enable or prevent knowledge transfer, and cultural and political issues that impact on the success of the KM strategies. In a similar vein, Schwikkard and Du Toit (2004) maintains that it is essential to establish a business case for KM as well as a clear understanding of the organization's culture as part of the knowledge audit.
- to identify which knowledge can be captured, where it is needed and can be reused and to determine the most efficient and effective methods to store, facilitate access to and transfer of knowledge.

In addition, as another example, Debenham and Clark in Liebowitz *et al* (1999) submit that the objectives of the knowledge audit are:

- to give a high-level view of the extent, nature and structure of the knowledge in a specified section;
- to provide a meaningful hard data input to the strategic plan for knowledge;
- to identify the relevant knowledge repositories within the organization;
- to provide a statement of the qualitative characteristics of the chunks of knowledge creation within a particular knowledge repository; and
- to provide scientific estimates for the quantitative characteristics of the chunks of knowledge within a particular knowledge repository.

2.1.3 Outputs of knowledge audits

Capshaw in Schwikkard and Du Toit (2004) states that a knowledge audit should provide the following outputs:

- an assessment of the current levels of knowledge usage and interchange;
- knowledge management propensity within the enterprise;
- identification and analysis of the knowledge management opportunities; isolation of potential problem areas; and
- an evaluation of the perceived value of knowledge within the enterprise.

Skyrme Associates (2004) highlights that knowledge audits deliver the following benefits:

- identification of the core knowledge assets and flows – what knowledge resources/assets an organization has, how that knowledge moves around the organization – from where it is to where it is needed, who uses it, etc.;
- identification of gaps in information and knowledge needed to manage the business effectively;
- areas of information policy and ownership that need improving;
- opportunities to reduce information handling costs;
- opportunities to improve the coordination and access to commonly needed information;
- a clear understanding of the contribution of knowledge to business results.

Stevens (2000) asserts that the knowledge audit can:

- identify the intellectual assets of value to the organization, but it is valuable in pointing out the improvements to existing processes and identifying people who have been acting as barriers to knowledge proliferation whether inadvertently or on purpose
- generate useful measures;
- reveal how knowledge is shared across departments;
- uncover best practices that people have developed but have kept to themselves and a few colleagues within the organization.

By following the above approach, it is noble to conclude that the knowledge audits help organizations identify their knowledge needs, draw up a knowledge inventory, analyze knowledge flows and create knowledge maps and simultaneously identifying gaps, areas of duplication, best practices, blockages, as well as barriers. For definitions and explanations of these concepts, see the detailed distinction of terms in chapter one.

2.1.4 Steps or Models of knowledge audits

Skyrme Associates (2004) use the terms knowledge inventory and information audit interchangeably to mean the practical way of identifying owners, users, uses and key attributes of knowledge assets. This may suggest that principles applied in conducting information and the knowledge audits are the same. It is based on this rationale that I cite the seven-stage information audit model of Henczel, (2000), five-stage integrated strategic approach to information audits of Buchanan and Gibb (1998) and information audit activities provided by The Information Advisor (1997).

However, it must be noted that Henczel (Ibid) strongly believes that the needs analysis, an information audit and knowledge audit are three different audits used to move an organization from information management to knowledge management. He sees an information audit as providing a snapshot of information use that enables the identification of those areas of the organization that are producing explicit knowledge and areas where there is a need for knowledge transfer mechanisms. It therefore provides the foundation for a knowledge audit that enables the identification of how and where knowledge is being created and used, and where it is needed to improve the outputs. Arguably, an information audit only looks at explicit

knowledge whereas knowledge audit also involves auditing tacit knowledge - this is where the greater challenge lies. The distinctiveness of capturing tacit knowledge as part of the knowledge audit has been strongly emphasized in the KM literature (Dataware Technologies, 1998; Liebowitz et al 1999). Depending on the specifics, the literature identifies various models of information/knowledge audit process.

Henczel (2000) Seven-stage information audit model takes us through the information audit process stage-by-stage highlighting the aspects of the process that are critical to its success and issues that one may face that can impact on the value of the outcomes. These stages are:

- *Planning* i.e. working through understanding the organization and developing clear objectives, developing the scope and resources allocation, choosing a methodology, developing a community strategy, and enlisting management support;
- *Data Collection* through any of the research methods e.g. interviews, questionnaires, focus groups, etc.;
- *Data Analysis* i.e. identifying problems, gaps, duplication, overprovision, opportunities, information overload, lack of transparency and accountability.
- *Data evaluation* i.e. interpreting the problems and opportunities within the context of the organization;
- *Communicating recommendations* through any of the following methods: written report, oral presentation, seminars, workshops, newsletters, etc. ;
- *Implementing recommendations* e.g. development of the KM strategy or knowledge policy;
- *The Information Audit as Continuum* i.e. conducting a series of information audits building on the information database of previous results to reassess the validity of the information baseline and match the needs of the ever-changing organization.

He further maintains that the model is so flexible that its components can be tailored to suit the objectives of the organization and the resources available under investigation.

Buchanan and Gibb's (1998) Five-stages integrated strategic approach to information audit highlight the following sequence:

- *Promote* greater understanding of the importance of the information/knowledge audit by promoting its benefits, fostering cooperation and doing pre-assessment of the awareness and value of knowledge throughout the organization;
- *Identify* top down strategic analysis of the organization which builds up a rich picture of the organization's mission, environment, structure and culture;
- *Analyze* by evaluating the information/knowledge resources, producing the knowledge flow diagram, producing a preliminary report and formulating action plans;
- *Account* by costing the information/knowledge resources in order to assign accurate cost associated with the management strategies and action plans;
- *Synthesize* by producing an information/knowledge report and an information/knowledge strategy to provide an integrated strategic direction and management guidelines for the future management of information in relation to the organization's mission and objectives.

The Information Advisor (1997) provides an information audit's different activities as follows:

How to Get Started

- Gain upper management sponsorship and support
- Obtain background information about the organization's structure, job positions, etc.
- Get buy in from the rest of the organization make sure that people now the purpose of the audit.

How to Acquire the Information You Need

- Conduct interviews with a cross section of all information users;
- Convene focus groups to stimulate sharing and brainstorming of ideas on the same topic.

What to Do with the Information Gained

- Identify bottlenecks to the flow of information and opportunities for its improved access and use;
- Summarize findings through recommendations and strategies;
- Present the results (perhaps as an "information map" to all key stakeholders);
- Form a task force to act upon the recommendations made and to establish future monitoring.

Liebowitz *et al* (1999) mention three steps in knowledge audit process as follows:

- Identify what knowledge currently exist in the targeted area
- Identify what knowledge is missing in the targeted area
- Provide recommendations from the knowledge audit to management regarding the status quo and possible improvements to the knowledge management activities in the targeted area.

Certainly, a proper business needs assessment; cultural assessment and identification of knowledge assets are part of the knowledge audits. Hence the above methodologies recognize the importance of greater understanding of: the organization's mission, environment, structure, and culture; its basic knowledge assets and flows; and the promotion of the audit to get a buy-in of the employees and support from the management.

2.1.5 The knowledge analysis methods

Several knowledge analysis methods that could be used in the knowledge audit include: questionnaire-based knowledge surveys; target group sessions; task environment analysis; verbal protocol analysis; basic knowledge analysis; knowledge mapping; critical knowledge function analysis; knowledge use and requirement analysis; knowledge scripting and profiling; and knowledge flow analysis (Wiig, in Liebowitz *et al*, 1999).

Skyrme Associates (2004) mention the following methods: analysis of key documents e.g. plans, processes, models and descriptions; analysis of the current information systems; interviews with the representative cross-section of staff; information requirements questionnaires, analysis of the information and knowledge flows.

2.1.6 Knowledge audit questions

To address the steps in the knowledge audit process mentioned above, some questions for knowledge audits include: The business concept (*how the business is conceptualized and the mission or objectives of the unit*); Enterprise Know-How (*dependency on knowledge, how knowledge is generated, codified and transferred*);

Knowledge Workers (*their focus, partnership with the management, knowledge-based training, and link of compensation to knowledge/skills levels*); Knowledge mediated through Information Technology (*knowledge-based management systems used*); and Organizational Design (*the structure and organizational flow of information*). (Shah *et al*, 1998)

Liebowitz *et al* (1999) point out that generally speaking “information” answers who, what, where and when; whereas “knowledge” answers how and why questions, hence its categories refers to the types of skills, rules and practices. They (Ibid) provide two sets of questions that constitute a knowledge audit instrument, namely:

- What knowledge currently exists in a target area? This includes determining existing and potential sinks, sources, flows and constraints including the environmental factors that could influence the targeted area, identifying and locating explicit and tacit knowledge, and building a knowledge map of the taxonomy and flow of the organization in the targeted area;
- What knowledge is missing in a target area? This includes performing a gap analysis to determine what knowledge is missing to achieve the business goals and determining who needs the missing knowledge.

Skyrme (1999) highlights that the evaluation should cover the following organizational dimensions *which constitute the levers, enablers and foundations of knowledge initiative*: leadership, culture and structure, processes for managing explicit and tacit knowledge, knowledge hubs or centers, market leverage, its measures, human infrastructure, technology infrastructure

April and Izadi (2004) agrees with Skyrme’s assertion as they provide a platform from which to initiate an action-oriented analysis of an organization. This indicated that in order for an organization to identify the activities involved in KM, a number of interrelated processes should be understood, namely, its knowledge: conceptualization, codification, utilization, distribution and sharing, knowledge reviewing and monitoring, knowledge measurement and the knowledge goals (normative, strategic and operational management). They further mention the need to understand the organization’s knowledge retention or memory.

Henczel (2000) maintains that it is critical that the right people are asked the right questions and that questions asked result in a dataset that is usable in terms of their volume, content and format.

Clearly the questions should cover the strategic, operational, technological, human and organizational information and KM factors in order to provide a holistic picture of the current status of the organization's knowledge health.

2.1.7 Knowledge audit report

At the end of the knowledge audit one will have the information necessary to design the knowledge management system on paper. An effective feedback after the audit will generate support for implementation programme, which will minimize resistance to suggested changes. Therefore a detailed and complete account of the knowledge audit process, findings and recommendations should be provided for review, analysis and reference purposes. It is critical that once the recommendations/strategies have been formulated, they should be communicated to the people who are integral to them being implemented. Henczel (2000) indicates that there are many ways in which one can communicate knowledge audits results or recommendations. He identifies the most common method as a written report, with the second most common being an oral presentation, and others including seminars, workshops, newsletters, bulletins, either in hardcopy or posted on the corporate intranets/websites.

Debenham and Clark in Liebowitz *et al* (1999) provide a structural form of a knowledge/information audit report as including the following:

- Two-page executive summary highlighting the major findings of the knowledge audit;
- A clear statement of the reason for conducting the knowledge audit;
- A description of the audit process;
- An analysis of the accuracy and sensitivity of the findings;
- The conclusions, which summarize the detailed findings of the knowledge audit in an easily digestible form, and should relate these findings to the reasons why the audit was conducted;

- A “block map” – a diagram displaying the various knowledge blocks audited, their relationships to one another and the knowledge repositories in which they reside;
- A section containing ‘block “proformas” – the means used to record information about the qualitative characteristics of a block, as well as to record the values for the quantitative characteristics of a block in a knowledge audit report, there is usually one proforma per page and one proforma per block; and
- An index providing the page numbers of the various blocks and corresponding repositories.

This research will draw on the above views in discovering what knowledge: is required, available, missing, applied and contained in the PLIS as well as identifying knowledge and information flows, gaps, duplication, areas of improvement and storage mechanisms. The literature views knowledge audits on various strands such as being the business needs assessment, cultural assessment and an examination of what knowledge is available, needed, missing, applied and contained. Although this paper will briefly give an account of the first two aspects, it is the third element that will receive the most attention. Resulting from this process a specification will be drawn up describing the priority of knowledge management requirements of the organization under investigation.

Chapter Three

Knowledge Audits: General Rules of Thumb

Knowledge and knowledge management have emerged as a current ‘hot issue’ for many organizations. An accurate description of the information and knowledge requirements is a prerequisite for an effective knowledge management initiative. Information and knowledge needs have to be elicited from the individuals. The identification and analysis of what knowledge is available is done through the knowledge audits. This section starts by: exploring the definitions of knowledge and knowledge management, and then provides a general approach to conducting a knowledge audit.

3.1 Knowledge and Knowledge Management

3.1.1 What is Knowledge

Business knowledge is often seen as a hierarchy ascending from data to information to knowledge to business intelligence. For the purpose of this paper data will be regarded as a set of discrete, objective facts about events e.g. numbers, events and symbols. As soon as the data is manipulated and/or related to category, events, context, etc. it gains meaning, revealing patterns and trends, and then is termed information. Drucker (1988) has eloquently described information as ‘those differences that makes a difference’, i.e. information is useful in that it makes a difference to our understanding of the world.

There are various dimensions of knowledge as it is complex and not subject to simple definitions. To cite few definitions, knowledge is defined as “a fluid mix of framed experiences, values, contextual information, expert insight that provide a framework for evaluating and incorporating new experiences and information”. (Davenport and Prusak, 1998) Knowledge therefore is understanding, awareness, familiarity acquired through study, investigation, experience, etc over a period of time. To the organization, the definition then implies that knowledge is what people know about the organization, when it is shared it becomes embedded in its documents, repositories, routines, processes, practices and norms. Staples *et al*

(2001) refer to these knowledge locations as brainware⁶, hardware⁷, groupware⁸ and documentware⁹. April and Izadi (2004) define knowledge as applied information. Information becomes knowledge when someone applies his/her intellect to transform it. Saint-Onge (2001) sees knowledge as ‘the precursor to effective action’, which suggests that all knowledge is purposeful and relevant. Knowledge in terms of actionability, requires that individuals know what they know, know why they know it and then act upon their knowing. Moreover, the literature recognizes several characteristics of knowledge that differentiate it from information as follows: (Lim and Klobas (2000), Nonaka and Takeuchi (1998), Bollinger and Smith (2001), De Toni and Tonchia (2003), Beijerse (1999), McDermott (1999).

3.1.2 Characteristics of Knowledge

- **Knowledge as a strategic resource asset.**

The resource based view (RBV) as quoted by De Toni and Tonchia (2003) refers to resources as a group of possessed or controlled factors available to the firm that can be transferred or acquired from outside. These include financial, human, technology and other physical or raw material; information – the fourth resource -, and **knowledge** (commonly known as the fifth resource). The RBV also recognizes that *assets* are linked to the possession, while *skills* to the doing and *endowments* to attributes such as brand names, patents, reputation, etc. *Capabilities* represent the capacity to spread resources by means of the organizational processes ‘organizational routines’ so as to obtain the desired results. Capabilities re therefore linked to the fruit. Heterogeneity and imperfect mobility of the resources is the condition necessary for a sustainable competitive advantage. So knowledge should be valuable¹⁰, inimitable¹¹, rare¹² and non-substitutable¹³. Knowledge is the only

⁶ Knowledge owned by people.

⁷ Knowledge embedded in the equipment, processes and prototype.

⁸ Organizational rules of thumb and war stories.

⁹ Paper and machine-based models and databases.

¹⁰ New knowledge results, (that is improved products, processes, technology, or services) that enable an organization to remain viable and competitive. The concept of being a first mover can help firms to attain a valuable strategic advantage.

¹¹ Synergy of the total personal and unique interpretation of information by a diverse group provides a rich and distinctive organizational knowledge.

¹² The sum of the employees know how, know what and know why built in the organization’s prior knowledge has an element of differentiation as it relates to that particular organization’s setup.

¹³ The group represents a distinct competence, which cannot be replicated.

resource, which is not readily replicated by competitors; the source of its uniqueness or competitive advantage is underscored by its tacitness nature.

- **Knowledge has to do with information.**

Nonaka and Takeuchi (1998) made a useful but seldom cited distinction between knowledge and information. For them knowledge is something intangible which resides in a shared 'space' called 'ba'. This shared space can be mental, physical, or virtual. But in contrast to information, knowledge cannot be separated from the context. That is, whether or how physical the space is available for knowledge, collegial interaction is crucial. Knowledge can be separated from the shared space and made tangible and transferable in media (documents, reports, books, databases, procedures, films, etc.) When separated from its context or shared space and made tangible, knowledge becomes information.

Something similar is posed by Murray in (http://www.ktic.com/topic6/23_term2.html) who said that "knowledge is information transferred into capabilities for effective action." In actual fact knowledge is action. Furthermore, Beijerse (1999) asserts that 'knowledge is seen as information, the capability to interpret data and information through a process of giving meaning to these data and information, and an attitude aimed at wanting to do so.'

- **Knowledge as a human act and a basic need.**

Knowledge is an individual interpretation of information based on personal experiences, skills and competencies. As a basic need, knowledge is needed to reduce uncertainty in human life. A reference to Maslow's psychology model is made which prioritized motives in order of importance, with biological need being the first. (Beijerse, 1999).

- **Knowledge is residue of thinking 'tacit dimension'**

This denotes that humans inherently possess knowledge. It is deeply rooted in an individual's actions, experiences, ideals, values or emotions. Knowledge resides in

the minds of the knowers and not in the collection and therefore only humans can take a central role in the knowledge creation. According to the resource-based view, the tacit knowledge of the people and capability of the organization to turn the knowledge of individuals to organizational resources, are the most important assets of any organization.

- **Knowledge is credited in the present moment**

The living act of knowing, and making sense of our experiences and insights always occur in the present moment. Moreover, to share knowledge involves uncapping our thinking processes for others in the present moment (Lang, 2001). This implies that meaningful knowledge must be actively reconstructed in the moment, in context of who the interlocutors are and what the community's particular needs are at that particular moment. This goes with recognizing that knowledge value degrades with time and can become toxically negative. Hence all of our present interpretations of the universe are subject to revision or replacement.

- **Knowledge belongs to communities 'social interaction nature'**

This idea forms bedrock of the notion that knowledge is constructed in communities. Knowledge is both produced and held collectively (rather than individually), in tight knit groups or cooperation where people work together in an organization. It is thus social in character. The social interactive process of continuous dialog may motivate the diversity of interpretation. The successful knowledge transfer involves interaction between people; there is therefore the relevance of social interaction in the creation of new knowledge. 'When we look at the individual experience, the heart of knowledge is not the great body of stuff we learn, but in a community or in discourse sharing ideas.' (McDemott, 1999)

- **Knowledge circulates through communities in many ways**

Knowledge circulates within the community and flows from one generation of practitioners to the next. Much of that circulation occurs from the informal, unwritten routine practices, mores, stories and folkways to tightly knit groups, 'communities of practice' and alliances. Botha and Fouche (2002) quote that "communities of practice

are defined as collections of individuals bound by informal relationships who share similar roles and common context” This implies that knowledge belongs to communities rather than to individuals. Knowledge acquisition, creation and sharing take place in communities such as project teams, workgroups, professional communities, peer groups, etc. However knowledge diffusion should be symbolized by reciprocity.

- **New knowledge is created at the boundaries of old and increases with use**

New experiences are interpreted with reference to the existing mental models, which in turn are modified by newer experiences. This means that something would make sense only if it can be related or conducted to the existing frameworks or schemas. Knowledge increases with use, that is, when applied to a real life situation or integrated into tasks, it becomes cumulative and becomes embedded in the organizational processes, products and services. However, Bollinger and Smith (2001) caution that the goal should be to combine the various levels of expertise present to create new the organizational knowledge. New knowledge is both created and assimilated naturally when it shares a common pattern with old knowledge.

3.1.3 Knowledge Conversion

Nonaka and Takeuchi (1995) have suggested that knowledge is created through the interaction between tacit and explicit knowledge through four different modes. These modes are:

- (1) Socialization, which involves conversion of tacit to tacit knowledge, that is the exchange of personal experience (through imitation, on-the-job-training, talking, etc.) results in personal experience being created in the form of mental models – (sympathized knowledge). This involves reflection in action.
- (2) Externalization, which involves conversion from tacit knowledge into explicit knowledge. This is a situation whereby personal/tacit knowledge is made explicit through articulation and systematization within the organization in the form of mentoring, coaching, storytelling, metaphors, analogies, hypotheses, etc. (conceptual knowledge)
- (3) Combination, which involves conversion of explicit knowledge held by the individuals and units into explicit knowledge at an organizational level, then

subsequent conversion of the organizational knowledge back to the individual in a different form. This is a key role of the information systems of the organization. This kind of knowledge creation is usually encountered in education and training (system knowledge).

- (4) Internalization involves conversion of explicit knowledge whether at the individual or organizational level into tacit knowledge in the form of the individual know how and organizational routines. This can happen by reviewing documented knowledge or learning by doing (operational knowledge)

Additionally, Swan et al, in Katsirikou (2003) singled out three modes of knowledge which facilitate the value of creating the knowledge processes (1) *Generative* – knowledge developed through joint activities involved in solving problems; (2) *Productive* – knowledge developed and accumulated through the creation of products and services; and (3) *Representative* – knowledge that is made available to suppliers concerning their own value in creating processes. Furthermore, five categories of knowledge as cited by Jantz, in Katsirikou (2003) are practical knowledge (which is useful for individual's work, decisions and actions), intellectual knowledge (which satisfies intellectual curiosity), small talk and past time knowledge (which satisfies non intellectual curiosity or the desired light entertainment), spiritual knowledge (which relates to religion and mystical experiences) and unwanted knowledge (which is outside one's interests and is usually incidentally acquired).

From the above discussion, it seems apparent that the main different types of knowledge are *tacit knowledge* (which is unarticulated knowledge that is in the person's head and is often difficult to describe and transfer) and *explicit knowledge* (which is clearly formulated or defined, easily expressed without vagueness, and codified and stored in records and databases). Tacit knowledge in an organization ensures task effectiveness, i.e. that the right things are being done so that the work unit can attain its objectives. It also provides for a kind of creative robustness, i.e. intuition and heuristic can often tackle tough problems that would otherwise be difficult to solve (Kim, 2000). Explicit knowledge enables the organization to enjoy a certain level of operational efficiency and control. It also promotes equitable and consistent organizational responses. (Kim, 2000). A third class of knowledge that has been acquired by organizations is *meta-knowledge* '**knowledge about knowledge**'

that they use to create and integrate all its intellectual resources in order to achieve high levels of performance. Knowledge is also characterized as embodied and embedded, embrained, encultured and encoded thus making the dichotomous position of tacit and explicit knowledge appears insufficient.

Organizations however, are skilled to continuously expand renew and refresh their knowledge in all categories. They can promote the learning of tacit knowledge to increase the skills and creative capacity of their employees and take advantage of explicit knowledge to maximize efficiency. It is therefore important to recognize the synergistic relationship between tacit and explicit knowledge in organizations. Effective knowledge creation, especially tacit knowledge hinges on a strong caring relationship among an organization's members. Knowledge management efforts should focus more on tacit knowledge and experiment with the new organizational forms, cultures and reward systems to achieve interpersonal interaction and social relationships, within which tacit knowledge gets expressed, shared and augmented.

3.1.4 What is Knowledge Management?

The organization's success depends critically on successful knowledge management. Knowledge management is a discipline that promotes an integrated approach to identifying, managing and sharing all of an organization's knowledge assets, including unarticulated expertise and experience resident in the individual workers. In other words KM is taking an advantage of what you know.

Three definitions of KM as cited in chapter one (1.4.5) are as follows:

- Broadbent (1997) says that knowledge management is about enhancing the use of organizational knowledge through sound practices of information management and organizational learning.
- In a similar vein Choo (1995) asserts that the purpose of KM is to harness the knowledge resources and knowledge capabilities of the organization in order to enable it to learn and adapt to its changing environment.
- Knowledge management process is about identifying information and knowledge needs; acquisition, creation, organizing and storing, packaging, distribution, and application or reuse of knowledge (Davenport, 1993).

Therefore, KM involves the strategic and effective combination of information management, communication and human resources to create new and valuable knowledge and improved routes to its access.

3.1.5 Primary Factors of Knowledge Management Practice

For knowledge management to be effective and efficient certain conditions must prevail, namely:

Knowledge Leadership: Knowledge leadership is about organizational practices that promote flexibility and an ongoing adaptive change. It is therefore an example of change management. Knowledge management is not much about control of the people it is about sharing, collaboration, and making the best possible use of knowledge and best practices. In the knowledge enterprises, the term control does no longer exist, it is used here as a term of reference. Interestingly, talking of control is not in classic sense but typically focusing on other issues. Knowledge workers require autonomy over their functionalities. Control is through a dialogue between senior managers and the members of the business team. Control is also concerned with ensuring that needed resources and processors are available in sufficient, quantity, and subject to the required security. Katsirikou (2003) affirms that security is in terms of protection of the knowledge resources (against loss, obsolescence, unauthorized exposure, unauthorized modification, etc.) and their quality of knowledge resources. He further explains that in establishing sufficient controls to govern the quality of knowledge resources, organization should consider knowledge validity (accuracy, consistency and certainty) and knowledge utility (clarity, meaning, relevance and importance).

In alignment with organization's purpose and strategy, leadership establishes enabling conditions for fruitful knowledge management. The most important managerial context for investing in and promoting use of KM is linking its efforts to the firm's strategy. According to Jack Welch as quoted by Kermally (2002) '*a good business leader creates a vision, articulates it, passionately own it and relentlessly drive it to completion*'. A clear vision, strategy, inspirational motivation and continual alignment of people to the vision and strategy demonstrate leadership intent.

Other aspects to fulfilling leadership mission, are that of being a catalyst through traits such as inspiring, mentoring, setting examples, engendering trust and respect, instilling cohesive and creative culture, listening, learning, teaching and knowledge sharing. (Katsirikou, 2003) Leadership is a process of influencing individuals and guiding others toward desired goals. It calls for a “peoplistic” communication approach. However, the knowledge environment has created a need for more strong leadership but of style very different to that of the authoritarian leaders of the past. Knowledge era, an unconventional time, calls for innovative, sensational and passionate leadership. Moreover, leaders should be deployed at all levels of functionality or accountability, it is as important to successful outcomes in teams, communities, departments and on project as is in the boardroom. Leadership is everyone’s business; it involves skills and abilities that are used whether you are in executive suite or frontline position. The more autonomy people have the more important it is that they become committed to a common vision.

Moreover, good leaders go up and down and around the organization to reach people, they do not stick to the established channels, they are informal and straight with people to generate trust and have a sense of purpose. This is in line with the real task of knowledge management, which is “to connect people”. We may recall that knowing is a human act. To say that is to highlight the fact that knowledge involves and resides in humans. Only humans can take the central role in knowledge creation. People are the heart of the knowledge philosophy. People create organizations and people can destroy them.

The effective creation of knowledge especially tacit knowledge hinges on strong caring relationship among organizational members. Caring is at the heart of leadership. When people work with leaders who care about them and encourage their hearts, they feel better about themselves. This set people’s spirits free, often inspiring them to become more than they ever thought possible (Chowdhury, 2002). One concept, which is widely discussed in literature, is that of ‘communities of practice’. Knowledge is embedded in social relationships. People by nature do not share knowledge. It takes coaxing to get them to share and know what they know and absorb what other people know (Gartner Group in Lim and Klobas, 2000). These are informal groups/networks of organization’s employees and relevant outsiders based on shared concerns and interests.

Leadership should focus on ensuring that people receive adequate training, empowerment and support, (termed '*organizational development*' in Holmberg and Ridderstrale, 2000) to promote the desired culture. Empowerment is releasing of human energy and trusting individuals to make decisions. It is therefore about creating situations where workers share power by assuming the responsibility of making decisions for the benefit of customers and their organizations. Human resources should be wise and accumulate a progressively and relevant experience through learning. Active learning is strongly suggested if the type of knowledge to be transferred is tacit knowledge. Active learning requires learners to have an active role in acquiring knowledge rather than it fed to them. Through this learning, a diversity of opinion and perspectives is promoted. People with different background and expertise can provide more conceptual lenses through which the essence of problems may be captured. Learning is contextual and builds on prior knowledge. This might include the use of mentors, apprenticeship, imitation, and guided learning by doing. However, empowerment and development results should bring about proper implementation. "The power of example, humility, engagement, directness, vision, redirection and restoration are the overarching attributes of a good leader".

Success of leadership is therefore a function of an organizational strategy, structure, corporate culture, management of knowledge processes, organizational learning, effective communication, control, and measurement discussed below.

Structure: Botha and Fouche (2002) maintain that the structure refers to: (i) formal organizational structure as represented by an organ gram depicting the hierarchical and functional relationships; (ii) cross cutting permanent and temporal structures such as task teams; as well as (iii) informal communicative relationships that exists in an organization. New organizational structures in knowledge age should be organized around cross functional teams 'integrated matrix organization', be flatter, more decentralized, more flexible, fluid, networked, with integrated processes. Newell *et al* (2002) call this organizing as '*adhocracy*'. This restructuring is facilitated by the use of information and communication technologies (ICTs) that break down boundaries of space and time and enhance lateral / horizontal communication. This structural configuration is most appropriate in enhancing creativity and innovation. These are "optimal hierarchies" that balance the decision

making load across an organization resulting in flatter organizations with fewer levels of management and with lower level employees being given greater decision-making authority little formalization in terms of formal rules and procedures. The job responsibilities are more loosely defined, giving the employees more opportunities to be more receptive to new ideas more objective about how best to use these ideas. The challenge for a leader is to balance his/her authority and discretion with workers' autonomy. Decisions are made through consensus, negotiation, and consultation or without these concepts at all. This goes to show that knowledge belongs to communities and not individuals; hence KM promotes the concept of Communities of Practice (CoP).

Culture: Leadership's primary focus should be on establishing a culture that respects knowledge, reinforces it's sharing, retains its people and builds loyalty to the organization. Corporate culture provides context in which business decisions are made and implemented in the learning organization. Knowledge is created and constructed within certain cultural settings, which predispose the individual towards learning and sharing it. Collective practices leads to shared sense making, distributed understanding and collective knowledge. Culture can influence what knowledge is developed, how it is understood and how and why it can be shared.

An organizational strategy and core values are the key attributes that underpin corporate culture and the learning organization. In a knowledge driven organization, leadership has to be a matter of substance not style. Leaders and people should share the same values, internalize these values and freely communicate in order to transfer knowledge. However, diversity coupled with the monitoring of results, is a competitive advantage for the customers, employees and organizations. Valuing diversity creates an environment that encourages everyone to reach his or her full potential. Therefore, corporate culture has to be collaborative, that is a culture where people enjoy sharing information and helping one another in order to promote the free flows of information and knowledge creation. We must also not forget that a clear commitment begins with a clear vision and strategy. The vision needs to tap into people's pride, the engine for extraordinary motivation and commitment, demanded by creativity. Additionally corporate culture needs to be flexible in order to respond to the market needs and environmental changes. Leadership should focus on establishing a knowledge infrastructure and a support system.

An open culture with incentives built around integrating individual skills and experience on organizational knowledge will be more successful. Commitment to the individuals is crucial; where a proposition is that ‘a company is made out of individuals – each of whom has different capabilities and potentials – all of which are necessary for the success of the company’. A culture should embrace the individuals’ differences and collective identity and goals. If the top executives recognize in action knowledge sharing as the way to move forward, if the true heroes are the ones that share, not hoard, KM will be successful. As an art, KM is about changing people’s value paradigm from ‘my knowledge is power’ to ‘sharing is power’. KM is therefore about large-scale incremental cultural change, new incentives systems, performance enhancement, learning and education.

Botha and Fouche (2002) maintain that a corporate culture should be characterized by: openness and trust; access to information, communication and collaboration across departmental boundaries and non-hierarchical levels; accessibility of senior management; empowerment of individuals and teams; incentives for knowledge sharing; and a propensity to experiment and learn.

Knowledge processes and routines. Knowledge is not only embodied in people or embedded in documents or repositories but also in organizational routines, practices, processes and norms. Knowledge organizations are expected to strive for excellence in execution of the critical knowledge processes. Knowledge processes include its acquisition, development, codification, retention, utilization, distribution, reviewing, monitoring and measurement. These should be defined to support human needs and be supported and enhanced by use of information communication technologies (ICTs).

Information Communication Technologies (ICTs)

Deploying technology to successfully organize and share knowledge will remain important. Organizations could not have global reach of their knowledge sharing without the technology. There is rapid uptake of video or teleconferencing, videoconferencing, web conferencing, desktop conferencing, pagers, cellular phones, wireless technology, e-mail, the Internet, etc. usage. However, the technology is a tool to help organizations capture and organize what they know and enable collaboration among people who may not otherwise be unable to discuss their ideas

and problems. All these functions have an enabling effect; ICT is therefore an aid rather than an outcome. ICTs enforce a notion of just-in-time knowledge and just-in-time access. ICTs address human bounded rationality in terms of neurophysiologic limits, that is, the rate and storage limits of the power of individuals to receive, store, retrieve and process information without error. Yet, organizations need the intelligent human being to turn information into useful knowledge and make decisions. There is an overwhelming confidence that organizations that understand these limitations of human capabilities and how they can be developed and managed through ICT will succeed. However, it should be kept in mind that ICTs have computation abstraction knowledge representation / de-contextualising limitation.

Measures. Organizations should conduct knowledge management audit to clarify the current state of their corporate knowledge management and to identify the KM opportunities and perceived value of knowledge within their organizations. Assessment should also be done to establish relationships among the cultural, structural, procedural, and technological factors of KM and links to financial performance. This topic is discussed in details below.

3.1.6 Management of Knowledge Processes

Knowledge management is a collection of inter-related processes that govern the identification, acquisition, development, codification, retention, utilization, distribution, sharing, reviewing, monitoring, and measurement of knowledge/intellectual capital/assets, consisting of:

- **Human capital:** Is that intellectual assets that goes home every night in the minds of employees. It is the knowledge, skills, experience, talent, competencies, education, intelligence, and innovation, creativity and problem-solving ability of the people that work within, or in partnership with, an organization. Chowdhury (2000) calls it ‘Return on Talent’ (ROT). Human capital relies on trust in order to be used. Effective knowledge generated means high ROT and leads to creative workforce, smooth processes, proper communication and continuous products and services improvements. It includes indicators such as enthusiasm, commitment, desire, etc., which are manifested by average years of service, expert turnover, brain drain, employees satisfaction, etc.;

- **Structural capital:** Is a commercial value of systems, processes, methods, best practices, know-how, agreements, copyrights, patents, licenses, trade secrets, brands and techniques which get left behind when the employees leave. These are protected by law;
- **Relational capital:** Is the relationship with the customers, suppliers and external organizations. (Cloete and Snyman, 2003)

Continuing their discussion, they (Ibid) emphasize that personalizing, aggregating and integrating the human, structural and relational capital create an economic wealth and value. Organizations should develop these knowledge processes and procedures into their core competencies. This goes to show that knowledge is not only embodied in people or embedded in documents or repositories but also in the organizational routines, processes, practices and norms. Literature explains these Meta knowledge processes as follows (Staples et al, 2001; April and Izadi, 2004; Skyrme, 1999; Botha and Fouche, 2002):

Knowledge identification: Identifying external knowledge means analyzing and describing the organization's internal and external environment. Organizations can make the internal information and knowledge visible through deploying yellow pages, knowledge inventory, knowledge flows and knowledge maps. They can tap into external sources through different methods, such as special centers, think-tank and external networks, listening posts, intelligent agents and the Internet (April and Izadi, 2004).

Knowledge acquisition: Knowledge acquisition centers on the people that an organization has and their abilities to craft novel solutions. Different types of acquisitions may be more effective than others. These methods include: recruiting experts, forms of cooperation with other stakeholders, headhunting, arranging conferences, pilot projects, strategic alliances, public and community forums, commissioning university research, etc. However, the internal capabilities should be exploited to the maximum first. (April and Izadi, 2004)

Knowledge development: Knowledge is being continuously created in the organization; refer to the modes discussed earlier. People are the primary knowledge creators. Knowledge development is a building block of knowledge identification

and acquisition as it focuses on generating new skills, new services and projects, better ideas and more efficient and effective processes. As people use the organizational knowledge and applying their own unique perspectives and experience, new insights are gained and more knowledge is generated. Knowledge is thus a resource that increases with use rather than being depleted. Organizations especially, information services, need to be constantly innovating, in a continual effort to move closer to satisfying the many facets of the users' information and knowledge needs. Knowledge learning is a key component of a knowledge-based organization. Knowledge creation relies heavily on serendipity and having plenty of slack to think, talk and read.

Knowledge codification and retention: This is the process of converting knowledge into accessible and applicable formats. It involves the use of information and communication technology (ICT); the relationship between culture and the format of codification; and the usability and effectiveness of various codification methods. Knowledge, here, is seen as a 'stock', i.e. in terms of access and retrieval. The system of knowledge and skills used should also preserve and store perceptions and experiences beyond the moment when they occur, so that they can be retrieved at a later stage. Both knowledge coding and retention are at the heart of creating an organizational memory, given that corporate knowledge is scattered, hard to find and easily disappear. However, capturing knowledge requires the individuals to add the experiences, learn to incorporate the knowledge systems and at the same time extract previously stored knowledge timeously. Davenport (1997) calls for the actions of pruning, adding context, enhancing style and choosing the right medium for presentation and access. He argues convincingly that the best people available for these tasks are the knowledge workers found within the information professions.

Knowledge utilization: Myburgh (2003) strongly asserts that what makes organizations long to prosper is not necessarily knowledge itself, or even knowledge capita, but the effectiveness with which knowledge capital is put to use. Organizations are associated with the social processes and are predicted on communication and information flows. Communication is associated with learning and the construction of knowledge. Knowledge use is a dynamic, interactive social process of inquiry that may result in the making of meaning or decisions. Unlike a commodity, knowledge content does not decrease but invariably increases with use

and thus needs to be controlled and managed effectively. The whole point of KM is to make sure that information and knowledge in an organization is applied productively and effectively for the benefit of the organization. Organizations can use knowledge for a competitive advantage through the collaboration of knowledge workers. Collaboration is defined not only as working together but also a closer, long lasting relationship or mutual engagement of people in a coordinated effort to achieve goals together. However, the structure, processes and culture will have to be as open, flexible and vigorous as the processes of inquiry and decision-making they support. The problems of the organizational blindness, fear of revealing a skill or knowledge gap, fear of bypassing one's superior and existence of a general mistrust in regard to outside knowledge should be overcome.

Knowledge sharing and distribution: Involves turning the isolated information and experiences into knowledge that the whole organization can use. Processes, structures and infrastructure that enable a dynamic value added interaction between knowledge workers and knowledge holders augment sharing and distribution of knowledge. Knowledge is therefore viewed as a 'flow'. The key to better transfer of tacit knowledge is to orchestrate a range of mechanisms that allow personal interaction to take place in the: (1) *same place and same time* through: share fairs, workshops, meetings, in-service training, coaching, structured dialogues; (2) *same time and different places 'remotely'* through videoconferencing, audio conferencing, desktop conferencing; (3) *same place and different times* through document management, whiteboards, project rooms, log books; and (4) *different places and different time* through e-mail lists, intranets, voicemail, web conferencing, Other processes include imaging, mentoring, communities of practice, storytelling, portals, e-mail, etc. (Skyrme, 1999)

Creating the right attitudes and behaviors engenders a culture of sharing. Culture is best described as 'the way we do things around here'. An organizational culture and a structure go hand in hand as the one reinforces the other. Organizational structures for knowledge innovation are flat, networked, ad-hoc, and team-based. Knowledge networking needs a mix of 'caves' (private workplace for intensive thinking or individual work and 'commons' (shared space – main streets, alleys, talk rooms - that enhances interaction. Knowledge enriching culture is characterized by an organizational climate of openness, empowered individuals, active learning,

boundary crossing, accessibility of senior management, willingness to share knowledge widely among colleagues, aligned goals and performance measures across departments, teams and individuals, intense communication, propensity to experimentation, etc. (Skyrme, 1999; Botha and Fouche, 2002).

Knowledge review and monitoring: April and Izadi (2004) confirm that this exercise provides an organization with the means to perform a fact-based evaluation of all the processes involved in KM. No project is complete until it is reviewed as soon as possible through discussions and use of standard procedures. Thereafter, lessons learnt should be recorded and disseminated.

Knowledge measurement: Measuring the outcomes of KM initiative is not an easy task, given its concept of intangibility. Questions as to what to measure and how to measure continuously arise. It is a culturally based problem. Nevertheless the investments on KM initiatives should be justified and benefits articulated. The process involves executing procedures to measure on an ongoing basis the organization's proficiency in sustaining and improving knowledge leadership, culture, structure, knowledge processes and technological infrastructure. Myburgh (2003) asserts that KM is also seen as potentially improving the financial situation of organization related to reduced costs and increased benefit, including revenue enhancement, returns on investment and cost savings. He (ibid) indicates that the value of the intangible assets equals an organization's ability to outperform an average competitor that has similar tangible assets. However, the measures that matter are ones that combine financials 'those that go to the bottom-line'. These include the *speed* (faster responsiveness of service delivery, faster development times and response time, accelerated organizational competitiveness, reduction of time spent in support activities and time spent getting goods/services to the market), *productivity* (speed, efficiency and effectiveness of staff as well as increased production of goods and services as tangible outcomes) and *management of staff* (development of motivated staff as well as compensating for staff attrition including effectiveness of sharing communities such as Communities of Practice - saved time and effort as well as increased productivity). (Myburgh, 2003)

The literature shows that there are new kinds of models that are more directly helpful to understanding an organization's intellectual capital. All the pundits agree that

human capital is one of the most critical dimensions of such measures. Among others are, *The Skandia's Navigator and the Value System, Intangible Assets Monitor* of Karl Erik Sveiby, *The Intellectual Capital Index* of Intellectual Capital Services, *The Inclusive Value Methodology* of Professor Philip M'Pherson, and *Skyrme's Asset-based Approach*, Swaak et al -*Know Me System, American Productivity and Quality Center (APQC)*, etc.

Myburgh (2003) brought into light the difference between quantitative and qualitative approaches to KM measurement. *Quantitative approach* to KM outcomes measurement looks at both component by component evaluation e.g. patents and market share as well as measuring the value of the intellectual assets in financial terms at an organizational level e.g. shareholder's value. However, this approach can be limiting in measuring knowledge processes, hence a suggestion is made explicitly that KM measure should include qualitative measures. *Qualitative approach* include use of various research methods in an attempt to gather valid results, these include among others: surveys, ethnography, examination of artifacts, questionnaires of various types, benchmarking, focus groups, social network analysis, etc.

This implies that there is a plethora of methods for measuring intellectual capital and thus capturing the true value potential of organizations. However, continuous analysis on how the company is doing is appropriate when it is done in an accurate and truthful way, particularly when accountability is high and business looks to generate a more enlightened approach. This is a challenge for managers.

3.2 Conducting a Knowledge Audit

Unveiling the information and knowledge needs is a complex, fuzzy communication process as most people find it difficult to express what they need to their satisfaction. However, although there are wide variety of approaches to conducting a knowledge audit, with varying levels of coverage and details, most audits will involve some or all of the following:

- **Identifying knowledge needs**

The first step in knowledge audit involves getting clear about precisely what knowledge the organization; people and teams need in order to meet the stated goals

and objectives. This call for people to think about their goals and objectives; the core processes, activities and decisions that they perform in the course of their day-to-day work as well as problems and challenges.

- **Drawing a knowledge inventory**

Knowledge inventory is a kind of stock-take to identify and locate knowledge assets or resources throughout the organization. It involves counting and categorizing the organization's explicit and tacit knowledge. In the case of explicit knowledge this will include things like:

- What knowledge we have (numbers, types and categories of document, databases, libraries, intranet websites, links and subscriptions to external resources, etc)?
- Where is the knowledge (locations in the organization and in its various systems)?
- Organization and Access (how are knowledge resources organized, how easy is it for people to find and access them)?
- Purpose, relevance and quality (why do these resources exist, how relevant and appropriate are they for that purpose, are they of good quality e.g. up-to-date, reliable, evidence-based, etc.)?
- Usage (are they being used, by whom, how often, what for)?

In the case of tacit knowledge, the inventory will focus on people and look at things like:

- Who we have (numbers and categories of people)?
- Where they are (locations in departments, teams and buildings)?
- What they do (job levels and types)?
- What they know (academic and professional qualifications, core knowledge and experience)?
- What they are learning (on the job training, learning and development)?

Gaps and areas of duplication can be identified when a knowledge inventory is compared with the analysis of the knowledge needs.

- **Analyzing knowledge flows**

While an inventory of the knowledge assets shows what knowledge resources an organization has, an analysis of knowledge flows looks at how that knowledge moves around the organization, i.e. from where it is to where it is needed. In other words how do people find the knowledge they need, and how do they share the knowledge they have. An analysis of knowledge flows will allow one to identify the knowledge gaps and areas of duplication; and highlight best practices, blockages and barriers to good knowledge flows and effective use. The knowledge flow analysis looks at both explicit and tacit knowledge, as well as the people, processes and systems:

From people, which is the relative focus at this stage, one has to look at their skills as well as their attitudes, habits and behaviors towards knowledge sharing and use.

In terms of processes, one will need to look at how people go about in their daily work activities and how knowledge seeking, sharing and use are (or are not) part of those activities. One also needs to look at what policies and practices currently affect the flows and usage of information and knowledge.

On the systems side, some assessment is needed of the key capabilities that will be used in any recommended actions or solutions. This includes the technical infrastructure, i.e. information technology systems, content management, accessibility and ease of use as well as the current levels of use. In short, to what extent do systems effectively facilitate knowledge flows and help to connect people with the information/knowledge and other people they need.

- **Creating a knowledge map**

A knowledge map is a visual presentation of an organization's knowledge. The three common approaches to knowledge mapping are:

- Mapping of knowledge resources and assets, showing what knowledge exists in the organization and where it can be found.
- Mapping people who have particular type of knowledge and expertise to disclose and record who in the organization know what, thus building knowledge directories.
- Mapping the knowledge flows, showing how that knowledge moves around the organization from where it is to where it is needed.

3.3 Summary

In an economy where the only certainty is uncertainty, the one sure source of a lasting competitive advantage is knowledge. Knowledge is different from information in various ways. Creating new knowledge is not simply a matter of mechanistically processing objective information, but it depends on tapping the tacit knowledge. For organizations, a comprehensive approach to managing knowledge includes coordination of people, technology and organizational processes to secure the greatest benefits from their investments. The quality synergy among these components and the capacity for leveraging the flow of knowledge, determine an organization's capacity to generate a sustainable value. Collectively, the knowledge business processes build a learning organization skilled at adapting its actions to reflect new insight and innovation.

Knowledge audit is not a quick or simple process. Locating and identifying knowledge that is suitable for capture, storage and use to build an organization's corporate knowledge base 'the content' is an ongoing activity. Management of knowledge processes creates a potential for a competitive advantage.

Chapter Four

A Case Study of the Provincial Library and Information Services (PLIS)

4.1 Background of the Organization

The Organization chosen for the Knowledge Audit is a Provincial Library Service, which falls under the Department of Sport, Arts, Culture, Science and Technology. It is responsible for rendering an effective, free, accessible and equitable public library and information service to local communities of the Province with the cooperation of local authorities and by means of affiliated libraries¹⁴. This is in accordance with the former legislation (Ordinance 16 of 1981), which stipulates that the provision of a free public library service was a joint responsibility of the Provincial Library Service and local authorities. Any municipality could establish, manage and administer a public library and affiliate to the Provincial Library Service, provided that the authority concerned undertook to comply with the provisions of the regulations of 1980 with regard to the free provincial library service. It was the responsibility of the municipality to erect a facility adhering to the minimum standards of the Library Service, to appoint staff and manage the library in accordance with the Provincial Library Service standards. After affiliation, however, the library remained under the control of the local community and did not become a provincial library.

It is worth mentioning that there is growing uncertainty in the interim as to a clear definition of the partnership between municipalities and the Provincial Library Service. According to *Annexure 5 of the constitution of the Republic of South Africa, 1996 (Act 108 of 1996)*, the legislative authority of each province has the exclusive right to promulgate legislation regarding certain functions. This includes public libraries, but not national libraries. The Local Government: Municipal Structures Amendments Act (Act 33 of 2000) and the Local Government Municipal Systems Act (Act 32 of 2000) do not provide for the execution of a public library function on a municipal level. This is the dilemma that the sector is faced with.

¹⁴ Public libraries, Government Department's libraries and Depot authority libraries.

Public library service is no longer embodying 'non commercial values', it has understandably adopted a 'business' language and practices, e.g. the concept of referring and treating the library user as a 'customer' is prevalent. This is in line with the guiding principles of the Public Service transformation and reform, the *Batho Pele* – '*People First*'. Access to a decent public service is no longer a privilege of the few, but the rightful expectation of all citizens, especially those disadvantaged. The *Batho Pele* is based on eight national principles namely: consultation, service standards, access, courtesy, information, openness and transparency, redress and value for money. The provincial library service supports people development and life-long learning and contributes to the improvement of quality of life. It is constituted of two sub-directorates, viz, the following:

- **Community Library Services**, which provide an infrastructure (e.g building and information communication technologies –ICTs) and professional guidance for the affiliated public libraries under its control. This is also referred to as the Regional organization. It comprises of five (5) regional districts.
- **Professional Support Services**, which provides technical support services, such as *provision of library materials, information and bibliographical services* as well as *research, training and development services* to the rest of the Provincial Library Service and affiliated libraries. In essence, the Professional Support Services staff facilitates selection, acquisition, preparation, maintenance and distribution of library material and equipment on loan to local authorities. This extensive range of library material include among others: books, periodicals, newspapers, CDs, videos, professional publications, etc. Promotional material such as posters, flyers, bookmarks, etc. is also produced and supplied free of charge to the public libraries. The service also involves the provision of professional guidance and advice to library personnel and authorities; rendering of reference and information service, conducting of research with regard to provision and use of library services and promoting the use of libraries and library material.

All these activities are centralized. Debates on centralization versus decentralization of activities always favor centralization. A centralized approach offers advantages in the handling of information. It offers economies of scale, the pooling of expertise and helps minimize duplication. But it does not mean it has no disadvantages.

There are approximately 74 employees currently working at the Provincial Library Service (PLIS) who are located at the headquarter office and five regional districts. Of the 74 employees, approximately 26 are information professionals i.e. staff members that hold a library and information science qualification. From the 26 professionals, 10 staff members hold senior and middle management positions and 26 are professional librarians whose tasks vary from collection development; cataloguing and classification; information and reference work; development of library related projects and promotional materials; training and development; etc. At the time of the research the position of the graphic designer became vacant.

The other 48 employees are administrative staff who perform operationally/support focused service lines such as receipt and physical preparation of books; distribution of books; library stocktaking; assist in special requests administration; Inter library loans, assist in administrative tasks involved in selection of library material; maintaining files; etc. At present the PLIS has approximately 163 service points (including public, depot and government departmental libraries) and 12 box libraries. The PLIS staff will include the personnel of these affiliated libraries from now and then throughout the paper. Libraries are reliant in repeat business rather than once off consumption, hence an emphasis on constant innovation for differentiation is made.

4.2 A Knowledge Audit Methodology

Methodologically, to clarify the current state of the corporate knowledge and knowledge management practices within PLIS, two frameworks were adopted and integrated, namely:

(1) *'Toolkit for the Knowledge-based Enterprise'* (Skyrme, 1999). This guiding framework is derived from an analysis of factors that underscore the success of a knowledge-based business. Its elements include: knowledge leadership; organizational environment, culture and values; organizational structure, business processes for managing organizational knowledge, measures and supporting technological infrastructures. The principles are also in line with the Knowledge Management Reference Model (KMRM) of Botha and Fouche (2002). They (ibid) confirm that an organization, which has developed its processes and procedures of knowledge creation, sharing and application into core competence, displays a high degree of proficiency in executing the above processes. Literature also reports high

degree of agreement on these core components or enablers of KM business processes and the symmetric nature of the relationship among them.

(2) “*KAP Organizational Readiness Framework*” (April and Izadi, 2004), which aims at evaluating people management issues within the organization, was developed by Julia Kukard, Kurt April and Colin Pinkham. The tool is based on the notion of a series of organizational behaviors which include: alignment with the strategy, or structure, the processes within the organization, the organizational learning style and learning, rewards, etc.

Questions for interviews and a questionnaire were constructed around the principles of the above frameworks (see Appendix A and B).

4.3 Analysis of Results and Discussions

4.3.1 How research methods were applied in the context of this study

- **Source of relevant data**

The sources of relevant data were identified; factual and opinion-based data was sought from a review of literature, interviews and information questionnaire. Some background information (i.e. ages, occupation and qualifications) was reviewed from the database to help understand a general profile status. A questionnaire was distributed to PLIS staff establishment of 74 employees through supervisors. Employees performing the same duties were requested to complete one questionnaire as a group. It was hoped to secure an acceptable response rate, mindful of number of staff that were on leave. Of the questionnaires distributed 43 were returned.

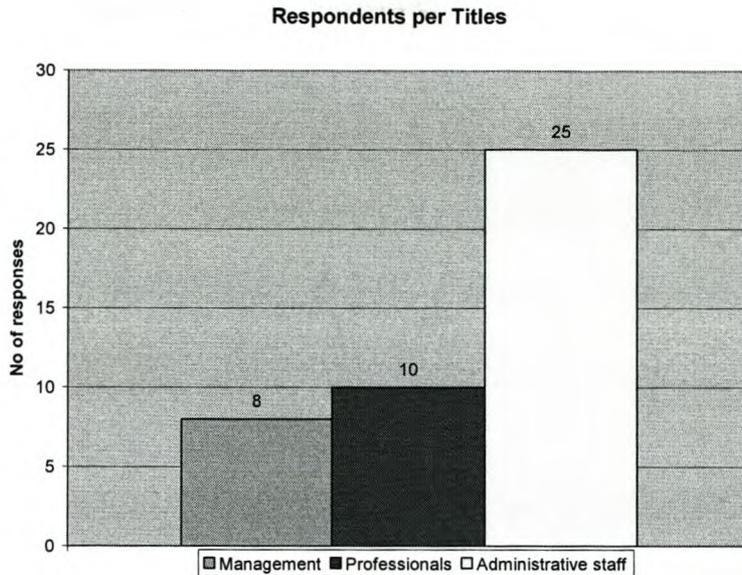


Figure 1: Questionnaire respondents per positions

The data regarding the response rate per positions has been recorded above in Figure 1. The rate of responsiveness was based on their proximity to my place of living and study as well as their willingness to become involved in the research. Management completed 8; professional staff completed 10 and administrative staff completed 25. Twenty percent (20%) of the staff was interviewed with the aim of gaining information and understanding the corporate culture. This was coupled by observations made throughout the research period.

- **Analysis**

The qualitative data was analyzed through the identification of broad response categories that emerged from the questions and data. It was transferred into a shared spreadsheet under specific headings identified. Therefore, these were grouped thematically. Areas and patterns of divergence among respondents and their knowledge needs were identified. Mindful that the analysis and recommendations presented in this chapter and the following chapter is based only on the above number of total staff who responded.

- **Presentation**

The qualitative data will be textual. The findings can be reported as follows:

4.3.2 Background of respondents

The respondents work in four (4) different venues. In terms of qualifications most of respondents have junior degree in library and information science and extensive experience in PLIS working environment. Senior management and very few staff have postgraduate qualification. In addition to degrees, some have attended workshops or continuing educational courses to update their knowledge. Almost half of the respondents are between the age brackets of 40-50 and evenly split of 26-35 and 35-40.

4.3.3 Perceptions of KM

In order to get in-depth information about the perceptions of employees on KM programmes, few were interviewed. Most of the employees read about KM in literature but no one has taken a course or an extensive programme on it. This is understandable as KM is now a hot topic in the literature of the profession and it is only now that academic institutions are offering KM programmes incorporated in junior degrees and postgraduate degrees, diplomas and certification. However, it should be noted that successful KM practitioners come from a wide variety of academic professional backgrounds without any apparent common denominator. Staff perceived KM not as another management fad but as an effort to help organizations attain and maintain their sustainable competitive advantage. They also proclaim that an optimal use of ICTs to cut the geographic boundaries and as enabler is critical to the success of KM initiative.

4.3.4 General Status of Knowledge Management Practices

- **Knowledge leadership**

Analysis of the response indicated that knowledge importance does feature in the vision and mission of PLIS. However, it is not communicated and mutually shared at all levels conversely; the organization is considering itself as a learning organization. Staff indicated that it is only recently that all levels participate in the strategic planning process of the PLIS. At the time of research, no policy document or guidelines have been produced in relation to knowledge management. Commitment

to KM is overwhelmingly positive, this is apparent in the following aspects of leadership:

- **Organizational Culture and Values**

Knowledge sharing

PLIS has a somewhat unique character in term of KM culture. It seems that it has an average awareness of the mutual benefits of knowledge sharing. As part of their work, staff members share their knowledge through departmental meetings, information session, workshops, training programmes, annual general meetings, meetings with the Minister of Sport, Arts, Culture Science and Technology (MEC) and Head of the Department (HOD), etc. This shows visibility of the senior executives to the staff. However, mixed feelings with regard to the formal presentation of some of the above forums were expressed. It was indicated that these forums most of times adopt a monologue type of communication rather than a dialogue one. Employees felt that the environment is not conducive enough to share knowledge optimally. This seems to confirm that organizations tend to share knowledge willingly and easily in informal situations but to a lesser extent when expected to share through formal structures and systems. Moreover, sharing of knowledge is not formally recognized or rewarded.

Physical working environment

The working setting, which is more of open space for most of the staff, makes the environment conducive for informal sharing. However, they indicated that they are not comfortable to do so unless supervisors grant the permission. Three of the working offices have no common room or what Skyrme (1999) calls 'mix of caves and common; main street and alleys, talk rooms and sitting out areas' which are the incubators of knowledge sharing and creation. These conventional /enclosed offices impede communication. The divisions are currently no housed at the same building and this on its own negates the constant interaction among staff members.

Human resources development and training (HRD&T)

There seems to be a commitment to learning through formalized training. PLIS has a training division which implements a program to identify what skills staff members have and what knowledge/skills they need to do their job. This process also helps the organization identify critical skills that staff does not possess. The training division is

currently run by one who has acquired NQF 5 training, which is a minimum qualification required by South African Qualification Accreditation (SAQA) for an organization to get accreditation of all training it offers. Liebowitz, et al (1999) argue that investment in training is likely to lessen the high turnover rate as people will stay with organization for longer if it is responding positively to their needs and taking interest in their career development. Learning is therefore not viewed as wasted time, practices involve individual learning contracts, learning on-the-job, training budget to spend based on the training needs. This training and development help staff learn new and more cooperative approaches to their work. Moreover a bursary scheme and learnership programmes are in place and are managed by the Human Resources Department.

Expertise profiling

New knowledge and skills acquired are profiled in a Provincial Library management system - (PROLIB) training database, which has a restricted access and of which most of the staff is not aware of. It is noteworthy to mention that PROLIB is available on a DOS as well as web-based environment. This database can fully work as a knowledge map if the levels of expertise and knowledge as well as the problems frequently arise in a particular knowledge field are incorporated. The database serves to identify people who possess particular skills and knowledge. This exercise also helps the organization identify leaders qualified to lead in-house training sessions. However, if it is not accessible to all, employees cannot be able to identify those people who possess the knowledge to answer their questions. Moreover, there is no skills-based payment and the database needs to be updated retrospectively in order to portray a true reflection.

Yellow pages

A list of all staff members with their names, titles, personal workplace location, educational background, professional background and contact details is maintained on the PROLIB. However, other factors such as a photograph, special domain of activities worked on, conferences attended, work interests, etc. need to be incorporated.

Both the Knowledge Map and Yellow Pages -map knowledge and people- who have particular skills and knowledge to ensure that knowledgeable people are accessible

for advice, consultation and knowledge exchange. April and Izadi (2004) strongly maintain that “the combination of knowledge directories and the Intranet¹⁵ offer an effective and relatively cheap method of locating experts and specialists within an organization”.

- **Organizational Structure**

Teamwork

Government structures are still hierarchically managed. They are by no way close to flat structure. However, elimination of bureaucracy is important for organization’s responsiveness and effectiveness. It was established that PLIS uses cross-functional, multi-disciplinary project teams, task forces and workgroups to exploit embodied knowledge. Forums such as the Training Committee, Selection Committee, Disposal Board, PROLIB Committee, Network Control Committee, Computerization of Public Libraries Task Team, Events Management Team, Free State Libraries Editorial Team, Sub-Divisions’ Management Team, etc. exist. In addition, two managers of the sub-divisions serve at other Departmental Meetings such as Financial Control Committee, Departmental Management Committee. This focus provides staff with autonomy to make decisions and it encourages lateral communication and boundary crossing. Selection of project team membership is certainly done systematically considering the various skills and expertise that might be needed on the project. Members of the teams receive verbal compliments and recognition through their current Performance and Development Management System (PDMS). This system relates to what April and Azadi (2004) call 720° (degrees) Feedback. But there are no knowledge sharing behaviors in the PDMS for full and formal recognition and rewarding. Job rotation or cross-functional moves and secondment are not implemented.

Conversely, the teams are parochial or isolated and this distracts from the positive outcomes imagined through the development of social capital – *an organizational relationships and norms that shape the quality and quantity of society’s interaction*- This system should facilitate the cutting out of many bureaucracy levels by giving employees direct access to the projects and their experience across divisions.

¹⁵ A network of networks that is contained within an organization to share an organization’s information and computing resources among its employees.

However, the more lowly employees complained that such autonomy for them to make decisions does not exist. They have to run everything through their supervisors.

Collaborative learning

To encourage professionalism and collaborative learning, the PLIS affiliate with Library and Information Association of South Africa (LIASA), however few staff members register for membership. PLIS is also a member of South African Bibliography Network (SABINET). These are knowledge links or inter organizational networks where access to information, free flow of information and creation of knowledge are central objectives. The personnel wide specialized capabilities work together closely in order to attain a competitive advantage.

These memberships open doors to a wide variety of services e.g. information, cooperative cataloguing, resource sharing, human resources expertise, etc. The forums provides opportunities to debate, share and learn from fellow colleagues, which should stimulate the development of pro-active and innovative ways to bring the library services to all the people of South Africa.

○ **Processes, routines and knowledge programmes**

PLIS is implementing various knowledge management strategies to satisfy its business and unique needs. Knowledge is pursued as a business strategy where its creation, capturing, organization, renewal, sharing and use are normal practices. This is evident in the design of information architecture on PROLIB, which is used to capture and organize the information and knowledge. PLIS website is also used to capture and enhance sharing of knowledge. Content management of the website is maintained. Explicit knowledge is managed through documentation management. The central library provides reference and specialized information services. Explicit knowledge is shared through the Intranet; e-mail; documents (policies, circulars, updates, etc.); and verbally through telephones, meetings or discussions. While tacit knowledge is shared through coaching, in-service training, meetings, workshops, etc.

Barriers to knowledge sharing at PLIS were indicated among others as follows: *lack of trust, prejudice, poor Telkom system, lack of confidence, unwillingness of some staff to ask others, staff shortages, less interaction amongst all staff, lack of computer literacy skills, insufficient computers, technology failure/ trade offs, hierarchical*

structure, time constraints, non repackaging/simplification of information, distance between offices, lack of integration of different components i.e. working in 'silos', lack of reliable information, etc. It is a reality that PLIS has to take the broader transformation imperatives into account in dealing with the legacies of the past. It must be noted that KM needs trust and support of staff. A notion that access to knowledge must equal to sufficient time spent to assimilate it and security was also expressed.

Mechanisms to improve knowledge sharing were identified as follows: Bulletin Board on Prolib should be revamped, activated, marketed and that the staff should be trained on how to use it; the Information sharing session should be more informal; Computers should be provided for all employees, Computerization of all libraries was noted as one of the mechanisms for encouraging knowledge sharing, i.e. inclusion of affiliated library workers establishment.

Knowledge creation strategy is implemented with focus on the organizational learning through annual research and training of staff. Training offered is related to each and everyone's line function in order to augment their work performance. Training programmes are compiled to build staff capacity (this include staff of the affiliated libraries). Knowledge is acquired through research, arranging workshops, strategic alliances, personal networks and cooperation with other government departments.

A customer-focused strategy is also implemented whereby customers' knowledge is captured, developed and transferred. This involves understanding of the customer's needs, preferences and business. A user survey satisfaction for both communities and public library workers is conducted on a yearly basis. In addition, a community user survey is also carried out to determine their information needs. The results are carefully understood to identify loopholes where remedial action can be put to improved service delivery. Knowledge is represented in some way that employees understand it so that it is put in a right context and people are able to apply it in their divisional processes. However, complaints were expressed with regard to not user-friendly format of some government Acts and regulations. Hard copies of reports are filed but there is no electronic repository to this effect. Implementation of an E-

cabinet is still investigated. The website can be used as a single location for all content.

Processes are therefore mainly information management processes. Tacit knowledge is managed through converting it into more explicit form. Knowledge integration mostly takes place in the middle and upper layers of the organization and is information dependent, while knowledge creation and acquisition takes place primarily at the lower, specialist organizational levels based on knowledge sharing between the knowledge workers. The degree of staff involvement depends on the management recognition of the role of KM. However, it is important to indicate that not all staff is fully involved.

A common theme that surfaced was that communication between departments is poor. It is important that even the lower employee receive the intelligence feedback. This is a good way of developing good working relationships with all divisions in the organization. It also encourages all employees to contribute to the flow of knowledge because they appreciate the feedback it produces.

○ **Information Communication Technologies (ICTs)**

PLIS, like any businesses make use of the information communication technologies (ICTs) to support its businesses. The business is what ultimately defines the requirements of proper information management systems and creating the software without a proper understanding of the context in which that software is to operate is a dangerous adventure. A technology platform is seen as a means of making visible and integrating the common processes and work activities that drive the success of the organization.

The ICT architecture covers aspects of the human interface and supporting services from physical connectivity to collaborative solutions. At a base level, people are connected whenever and wherever they are – in the office and at remote sites through the telephones, E-mail Outlook Express, the Internet, and Intranet and Helpdesk system. Use of electronic communication systems provide the staff timely with relevant official information; provide a forum to share and improve the communication. The access to the Internet is limited to a few employees, which suggest that such information sharing does not go beyond a specified level. However,

approximately 90% of the staff members have access to the e-mail facility. ICT Policy guides the use of electronic communication system.

PLIS has developed an information system to support some of its business processes regarding information access and processing called the Provincial Library (PROLIB) management system. A noted problem is lack of integration between PROLIB and the Departmental Financial system – Basic Accounting System (BAS) and Logis. This causes duplication of efforts. An interface between the systems needs to be established. There are forms of repositories like a central library, LIS website which act as one stop shopping single location for all useful content. Yellow Pages and expertise profiling database are also maintained on the PROLIB system.

Lack of sufficient IT skills is also seen as an inhibiting factor to use of the electronic communication systems for knowledge sharing. The survey conducted in 2004 seems to indicate that most of the staff have acquired IT skills through self-education and trial and error. Administrative staff have very poor or no IT skills. Subsequent to the survey, PLIS has made training of staff on IT skill at various levels its first priority.

However, the customers care system, helpdesk: call center, desktop publication and automated software installation to improve service delivery to desktop clients is investigated. To offer a professional support services, the following subject data models exist to support the process: Library management system. Library suppliers database, community profiles, periodical administration, training administration (service providers, course register, training profiles), information databases, government information, community information, business information, in-house publications, Website, research database, and data processing of research results. Events calendar, Events management, project management are investigated. For Community Library Services: Building register, building programme, maintenance programme, Security, community profiles are also investigated.

- **Measures**

Although evaluation of the benefits of any KM initiative will inevitably be labor and resource intensive, the argument for more effective evaluative measures for PLIS KM is a compelling one. But why evaluate? Most simply, because there is no other way of knowing whether the KM objectives are being met and there is no

conceivable justification for not knowing. Moreover, whether those objectives were satisfied or not, we need to know precisely why. An instrument for assessment of KM practices should contain measures for assessing the effectiveness of organization's knowledge generation, acquisition, integration and application process as well as the ability to embed these into the efficient organizational routines. KM has to have a significant measurable impact on the performance and productivity of employees and the organization. This also includes measures of technological enablement of collaborative knowledge processes. Benefits of KM practices can be seen through better information, knowledge correctness, insights and peripheral vision as well as how these contribute to better decision-making and better performance. PLIS conduct qualitative research on an annual basis on its activities but not comprehensively on other KM related aspects.

○ **Promotion**

PLIS is marketing its activities through various marketing tools such as publications, posters displayed in libraries and non library locations, brochures, use of the media opportunities, in-house displays, exhibitions of its resources in non-library locations, leaflets about services and materials, library service web pages, etc. However, it is ensured that the promotional activities are in keeping with the objectives and corporate culture of the overarching parent organization yet ensuring that the identity of the service is not subsumed or overruled. This effective promotion has a '*snowballing effect*' as it gathers influence and momentum in easing the way for future promotion, so that success breeds success. Staff is encouraged to write articles for the in-house publication in-order to share their knowledge. This publication is used as an educational tool for public library workers, as well as the academic institutions and it has received national recognition. PLIS has employed a specialized graphic designer with a range of skills in marketing graphic design, copy writing and reprography. The graphic designer uses his advanced skill to exploit the desktop publishing software to its full potential. This enhances the levels to produce typography and graphics of an acceptable quality.

4.3.5 Responding to Other Research Questions

4.3.5.1 Categories of Knowledge needed to perform tasks

It became obvious that individuals have different needs based on their job functions. All staff needs knowledge on a daily basis, knowing where to look for information and knowledge is the key to finding their answers. The specific knowledge requirements of employees were identified as follows:

Management

Management's knowledge needs was focused on high level domains such as knowledge about management of: finances, human resources, projects, time, risks, and information systems; policy development; government policies and structures; strategic planning; knowledge about political, economic and environmental affairs; latest advancements in the librarianship field; fundraising; research, lobbying and advocacy; etc.

Staff

Staff identified different knowledge needs such as: administrative activities (e.g. typing, telephone etiquette, filing); computer literacy; communication skills (e.g. writing official letters, presentations); customer service; marketing and promotion; research; specialized information projects; new library development projects; training and skills development; editing; academic writing; government related knowledge (e.g. policies, structures, relevant legislation, local government); information resources; selection and acquisition of library materials; cataloguing and classification; physical processing of library materials; PROLIB system; basic managerial activities (e.g. planning, coaching, time and project management) etc.

It has been evident that staff has a greater need for procedural knowledge whereas management requires procedural and strategic knowledge. Knowledge, which was characterized as sparse, was new amendments to legislation, which are usually not communicated timely. Staff indicated that the environmental factors impacting their knowledge include among others, financial constraints, technological advancement, political leadership, changing procedures, changing in international standards e.g. in cataloguing the new 13 digits of the International Book Number (ISBN), etc.

4.3.5.2 Categories of knowledge sources

KM must ensure sufficient external and internal transparency and help employees locate what they need.

Management

Managers claim that they garner some information they use in decision-making not from formal sources but from informal activities such as meetings and conversations. They listed various external and internal sources of knowledge that enable them to perform their duties. These include industry experts, market surveys, business books, journals, news sources, financial statements, peers, subordinates, personal education, trade associations, activities of peers, senior management, conferences, the Internet, other electronic databases, circulars, competition, customers, past, personal networks, organization, shop floor, filing system, personal files, etc.

Staff

Some sources of knowledge for staff overlap with those of management. They indicated similar sources such as the Internet, colleagues, publications, supervisors, line staff, senior management, personal education, policies, formalized training, procedure manuals, years of experience, circulars, library materials (including books, periodicals, newspapers, CD-ROMs), in-house journal, municipal managers, journalist, book authors, PROLIB, personal networks, academic institutions, other institutions, etc. Specific sources for specialized work such as cataloguing and classification were indicated as follows: AACR2, Dewey Decimal Classification Scheme and or Web Dewey, SABINET, IFLA, IGBIS. We may notice that these are the combination of internal and external resources.

These identified sources of learning imply that obtaining knowledge is a function of knowledge infrastructure that includes: educational programmes, business intelligence, helpdesk, informal meetings, knowledge counter, suggestion boxes, archives and research and development division. This also goes to show that staff taps into external sources for information on an informal basis and or through projects.

Some staff members indicated that they need new sets of reference sources such as dictionaries and thesauri. An indication that computer training and the Internet access would make their job easier was made. Staff indicated that they do not know where to go for the answers to their questions. They often call around to several different people before they get an answer to their questions and this exercise is time consuming. Knowledge is shared verbally, in written printed and or electronic format.

Experts on various types of knowledge were identified as top management for a strategic direction (MEC and HOD), senior managers, supervisors, managers, researchers, ICT staff, cataloguers, library material selectors, municipalities, chief financial officer, architects, infrastructure managers, quantity surveyors, contractors, Registry staff, Human resources management staff, etc. However, expectations are running high for high cooperation to be received from the human resources department.

4.3.5.3 Clients

The clients that are served include affiliated libraries personnel, public (regardless of age) through the public libraries affiliation, colleagues, government departments, local authorities, private institutions, academic institutions, municipal officers, etc.

4.3.5.4 Outsourced jobs in last five years

Outsourcing can save money but at what cost? Organizations are cautioned against 'knowledge hallow out' i.e. thinning out of specialist knowledge base. This implies that outsourcing can work to the detriment of an organization, if not properly managed. The following functions were/are outsourced:

- (1) In the absence of the graphic designer due to the resignation, designs of promotional material and the layout of the in-house journal were outsourced;
- (2) New library buildings and maintenance of old buildings is an outsourced activity, however, advice is provided by staff in terms of standards and requirements to be met;
- (3) Support services such as security, cleaning and garden services;
- (4) Printing due to incapacity of photocopier;
- (5) Publishing of indexes;
- (6) IT services;
- (7)

Subscription management. The reason for outsourcing was for cost effectiveness and lack of expertise in the organization.

4.3.6 Existing Knowledge / Knowledge inventory

The above discussion reflects the existing knowledge. Given the wide range of competencies and capabilities across the organization, I agree with Schwikkard and du Toit's (2004) assertion that attempts should be made to leverage off the more specialized KM tools and content to ensure that there is a regular and relevant exchange of business intelligence between those working at the coalface and their colleagues who are developing innovative solutions to take to the market. However; the content required is delineated below.

4.3.7 Knowledge Needs / content required

It became obvious that there were knowledge needs in operational, strategic, expertise and capacity, as well as around learning sources areas. These are almost similar to Schwikkard and du Toit's (2004) findings. The specific knowledge requirements by employees are identified below:

Knowledge about internal expertise across the organization: As indicated earlier the existing yellow pages and knowledge maps needs to be revitalized. Moreover, maps of information and knowledge assets need to be established to show what the organization knows, where and how particular knowledge assets are stored. An electronic system to manage the experience and insights gained on all projects, working committees, research surveys and overseas engagements does not exist. April and Izadi (2004) maintain that a system like the *Knowledge Online* will provide employees with timeless reports, contacts for specific problems, learning process and insights that may arise in the future. It will also safeguard these experiences and increase transparency of current and past projects across divisions and departments thus encouraging cooperation. Built in such a database should be (1) feature for activity tracking describing significant interaction of experts with personnel; (2) a solution techniques; and (3) a catalogue of key project deliverables. The notions of quality and timeliness of information must be maintained.

April and Izadi (2004) further maintain that the above is possible if organizations conduct an After Action Review in every project undertaken. After Action Review (AAR) facilitate learning, and the subsequent embedding of new learning into the organization's knowledge. Learning must be captured and quickly disseminated to the employees in various ways of communication.

Staff should receive training on: Computer literacy; Promotion and marketing, Knowledge management; diversity management; networking skills, consensus building skills, etc.

The strategic knowledge needs which arise to manage risk professionally and at the same time ensuring that public policies and statutory requirements are adhered to, includes: Competitors' websites to gain information on the competitors' intelligence; and Technical reports analysis to get research results and links to websites containing information related to thought leadership material.

Contact relationship management A system, which will enable employees to distinguish between partners, competitors, external experts and other value that might need to be attributed to the relationship, is required. This will ensure that these interactions are effectively managed to avoid duplication of effort and inconsistent communication.

4.3.7 Knowledge Flows

All staff needs knowledge on a daily basis. Knowing where to find information or knowledge is the key to finding one's answers. People claimed that they do not know where to go for the answers to their questions. As a result they mostly ask their colleagues first, and then their supervisors. The library is seldom used. There is minimal knowledge in terms of using ICT for sharing of knowledge. This potential needs to be unleashed through training. Information is shared informally without getting documented. This suggests that not all the flow of the intelligence is directional, hence it has a potential to dry up. Feedback and bottom up inputs is important and should be taken seriously.

In terms of processes, the Department's Electronic Communication Policy governs the ethical dimensions related to its use. These include privacy, accessibility and protection of the intellectual property. Some restrictions negate the personal external networks. The PLIS user-friendly ICT infrastructure helps to connect people. However, not all staff members have computers, and or know how to use them. The current level of ICT use for knowledge sharing is still low. Other technologies should be deployed to enhance the knowledge flow especially that of tacit knowledge.

Chapter Five

5.1 Recommendations

The following aspects regarding knowledge management quality landscape of PLIS have to be taken into account:

Knowledge policy

Knowledge management is strategy-driven. Treating the knowledge component of business activities as an explicit concern of business is reflected in strategy, policy and practice at all levels of the organization. PLIS should formalize its knowledge practices through the development of a knowledge policy. In their study, Schwikkard and du Toit (2004) strongly emphasized that managers should understand: (i) the value of knowledge; (ii) the economic consequences of KM practices; (iii) how are KM practices in their organizations compared to those in competing organizations; and (iv) the role of KM function in building organization's capabilities of the future.

A knowledge policy should define the objectives of knowledge utilization in relation to corporate objectives; the organizational resources of knowledge and their management throughout their life cycle; people who manage knowledge and their responsibilities; systems and technologies for information and knowledge management which will meet the objectives of knowledge utilization; criteria used by the organization for assessing the costs and benefits of knowledge; criteria used by the organization of monitoring and evaluating its knowledge activities; criteria for maintenance and enhancement of the knowledge quality and standards; and safeguarding measures of information and knowledge against misuse and loss. It also determines what is to be learned, where learning will take place, who will learn and when learning will take place. People from different backgrounds and disciplines (including librarianship, information communication technology, human resources management, marketing, etc.) should be drawn together to help formulate the above strategy for the development and exploitation of knowledge.

Knowledge sharing

Knowledge sharing should adopt other methods such as dialogue, story telling, groupware¹⁶ flow, videoconferencing¹⁷, group search and retrieval¹⁸, intelligent agents¹⁹, communities of practice, etc. (April and Izadi, 2004). PLIS should formalize its Information Sharing Session and structure it in a way that allows people with like needs to get together more frequently to discuss topics that interest them.

A barrier to knowledge sharing is an inappropriate rewards and recognition system. Knowledge sharing behaviors should be incorporated in the current performance and development management system. A skill-based payment should be arranged with the Human Resources Department. Recognition should also include the annual awards for knowledge achievement. Opportunities should also be given for external visibility through presentations and publications. Rewards for teams should be considered as well to avoid individuals' hoarding of knowledge.

Knowledge Base

Work today is very complex; problem plagued and requires a broad base of knowledge. Most of that knowledge is not stored in all minds. So in order to get work done and minimize the knowledge deficit, employees should proactively cultivate relationships with other people who have the knowledge needed through networking. Networking is a two way street, to get people to share their knowledge, one has to make sure that s/he has something worth trading.

Although PLIS has a low turnover rate or brain drain, tacit knowledge from the employees should be elicited and captured before they leave the organization. The key is to formalize the knowledge as soon as possible so that it is not lost. Use of ICT has made it easy to create 'lessons learnt knowledge base' after a special or critical solution occurs. Informal 'fix' of the system problems should be documented. It is very difficult to transition for the development and maintenance of systems from one geographic area to another when much of the knowledge about the system is in the heads of developers. This will form part of a corporate memory.

¹⁶ Software package, e.g. Lotus Notes, for people working together on a project

¹⁷ A teleconferencing involving a video stream and is an example of multimedia application, one involving sound and image in a digital form.

¹⁸ Searching of an 'invisible web', i.e. what one cannot retrieve in the search engine results.

¹⁹ Stand alone programs fragments loaded with management features like filtering, grouping and summarizing that a user can use to search out information.

“Blue Pages” which detail external experts and consultants with whom PLIS has worked should blend the Yellow Pages. Regular updating of the entries is also recommended. The existing expertise profile should be revamped and made accessible to all. A photo gallery should also compliment one of the two.

Multi-skilling

The concept of multi-skilling must be implemented. There are those skills that are required by the library marketplace to make staff versatile and well rounded. Staff should give input in terms of how the training budget should be spent as they choose. It is recommended that the formal training should be balanced by informal learning therefore PLIS should establish Knowledge Communities of Practice. This will allow staff with like needs to get together to discuss topic that interest them. Formalized training and development can also be through corporate university/technikon exchange programmes. The training division can offer courses in conjunction with the academic institutions. (Skyrme, 1999)

Information Communication Technologies (ICTs)

PLIS should invest in buying more computers for its staff and advanced technology for videoconferencing, web conferencing and desktop conferencing. These would create forums where dialogue can continue and as objects of tacit knowledge sharing. However, it must be taken into consideration that there is no substitute for personal contact, e-communication should not be used to mitigate against personal communication. Staff should be encouraged to meet face-to-face. The return on the investment on KM programme and the value of knowledge sharing would help managers in justifying this recommendation to its financial authorities. Focus must be on training the staff on how to use the e-mail system, the Intranet and PROLIB bulletin board intimately in using them as tools for sharing knowledge.

The partnership for knowledge management

Knowledge-based systems should forge new partnership that brings together the organization’s capabilities to create and use knowledge, organize knowledge, and build an infrastructure that enables the effective management of knowledge. Four groups of experts who need to work together as teams of knowledge partners are: **users** (individuals who are personally involved in the act of creating and using knowledge – technologists, professionals, managers, etc.); **knowledge professionals**

(including librarians, records managers, archivists and other information specialists – people who have skills, training and know-how to organize knowledge into systems and structures that facilitate the productive use of knowledge), **technology experts** (individuals who have specialized expertise to fashion the knowledge infrastructure of the organization - system analysts, system designers, software engineers, programmers, data administrators, network managers, etc.) and **human resources experts** (individuals who have special skills, training and know-how to manage people).

Organizational skills and competencies required in KM practices

For the information professionals to implement successfully KM programmes, the following organizational skills and competencies are required: *communication skills, leadership skills, analytical skills, facilitation skills, networking skills, consensus building skills, persuasion skills, team-working, coaching, networking and mentoring skills*. However, the most core competencies are: the ability to analyze business processes, understanding of knowledge processes within the business process, ability to use information communication technologies (e.g. to do content management of an intranet, data searching, etc), document management (for managing explicit knowledge); change and project management skills. PLIS should audit their staff skills against this checklist.

These skills recast the information professionals' roles to knowledge professionals with high level of skills and expertise. They should jointly hold reins of KM with users, technology experts and human resources experts to help steer and shape the knowledge policies, structures, processes and systems that will nurture the organizational learning. They should contribute towards designing and development of workgroup application suites that are effective platforms for knowledge management; collect and analyze the strategic intelligence; and act as trainers and consultants who transfer the knowledge gathering and research skills.

Employment of Chief Knowledge Officer (CKO)

I highly recommend that a CKO should be employed at an Assistant manager level reporting directly to the Director to promulgate the knowledge agenda, oversee its implementation and directly manage the corporate knowledge teams. However, this appointment should not send wrong messages to staff; KM is everyone's task. CKO

will thus legitimize the KM and send signal of its importance. It is advisable to get everyone in the organization involved in the quest for knowledge rather than knowledge specialists. The CKO must be someone who understands the ethical, epistemological and human issue dimensions. To be specific, the CKO must be able to deal with a wide variety of materials and people; interfacing with computer systems and with organizational hierarchies; interacting with technology and with personalities; dealing with computer networks and human synergies and coping with e-mails and emotions. (Brooke-Norris, 2001) The most critical factor is a thriving culture of '*knowledge sharing is power and learning*'. The Department should in the near future establish a Knowledge Management Directorate with complete representation of all its components.

Effective communication

We may recall that the heart of knowledge is a community in discourse sharing ideas. There is therefore a need for proficiency in verbal presentation of ideas to guarantee understanding. Knowledge work is dominated by communication, through discussions, deliberation, argumentation, debates and negotiation. Knowledge creation therefore requires frequent informal, direct face-to-face or indirect personal interaction. Because the social construction of knowledge occurs through narrative, language is crucial. A standard language is a factor in ensuring understanding and better results of learning and knowledge sharing. Diversity in terms of the language should be catered for. However, the concept of bounded rationality in terms of language limits should be kept in mind. That is, the ability of individuals to articulate their knowledge or feelings by use of words, numbers, or graphics in ways which permit them to be understood by others. PLIS should make a tremendous effort in improving its levels and channels of communication.

Library

The central library should take the information management a stage further to include KM. Functions could include, among others:

- maintaining and sustaining the knowledge repository (know where to find knowledge both from inside and outside the organization and catalogue and index all types of knowledge assets to aid efficient retrieval);
- providing a one stop shop for multiple knowledge needs;

- running a client advisory service (connecting people who have problems with those who have potential solutions)
- offering an expertise on sources, their availability, relevance, quality and overall usefulness to business;
- helping individuals connect to each other (apply Information Resource Management -IRM skills so that knowledge is properly classified and mapped);
- offering skills and advice in KM processes, maintaining the content standards;
- providing high level knowledge maps for navigating the corporate intranet;
- providing a collection of all electronic public domain third party content currently subsidized to by the organization; and
- providing internally developed directories of relevant industry content available via the Internet.

This indicates that a library must offer more than a collection of information but also actively and creatively link people. This involves collecting, analyzing and disseminating information put into useful repackaged form.

Market leverage

In addition to the publication and online information services, knowledge must be exploited externally through consultancy services and a slogan '*we have knowledge*'

Subsequent to the employment of the CKO, PLIS will have the technical expertise to implement these recommendations.

5.3 Conclusion

Knowledge audits clarified the current state of PLIS corporate knowledge management and identified potential opportunities and the perceived value within PLIS. It created the realization of PLIS capacity to take action on its knowledge potential. It has also assessed the relationships between cultural, structural, procedural and technological factors of KM.

The results seem to indicate that PLIS has a knowledge infrastructure and a technology infrastructure. It has e-mail system, web page, PROLIB, limited access to the Internet. What is needed is more coordination; recognition of the importance and enhancement of KM related activities. Staff has some fairly basic knowledge and

information needs that must be addressed. Important to note, is the reality that a KM activity for PLIS has to take a broader account of the legacies of the past such as dealing with inequality, lack of opportunity. It has to address its adaptability, responsiveness, and innovativeness in relation to new knowledge, skills requirements and new modes of provision. Indicators of KM success and evidence should take the measuring criteria beyond the checklist of policies and strategies, procedures and processes, systems, activities but professional competence, commitment, benchmarking and adoption of best practices.

The thrusts of a knowledge-enhanced strategy are knowledge sharing of what is known and motivation of the new. Effective KM requires creating a supportive, collaborative culture. Organizations, which actually leverage the talent of their people through knowledge sharing, mutual support and cooperation, outperform those that depend on talent alone. Increased collaboration is associated with an increase in competitive advantage and hence success which is often indicated by profit. This implies that KM can be successful through the collaboration and teamwork conducted with an innovative corporate culture. People are what matters. Community building is more important than ICTs. If an organization does not support a human communication network that operates freely, seeking the shortest path between knowledge providers and knowledge seekers, a KM project will never succeed. Other key aspects include respecting knowledge authority rather than position authority, inculcation of a strong sense of co-responsibility and self-regulation, maintaining a degree of informality. KM strategies need to recognize the ownership of knowledge participants in order to encourage their participation and collaboration, the more knowledge is used, the more it grows'.

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APPENDIX A
INFORMATION QUESTIONNAIRE

Answer as completely as possible.

ONE: Identifying what knowledge currently exists in the targeted area

1. List specifically the categories of knowledge you need to do your job.
 - For each category of knowledge mentioned above please indicate:
 - (1) How do you use this knowledge? Please list specific examples.
 - (2) From how many sources can you obtain the knowledge? Which sources do you use? Why?
 - (3) Besides yourself, who else might need this knowledge?
 - (4) How often you and others cited above use this knowledge?
 - (5) Who are potential users of this knowledge who may not be getting the knowledge now?
 - (6) What are the key processes that you use to obtain this knowledge?
 - (7) How do you use this knowledge to produce a value added benefit to your organization?
 - (8) What are the environmental / external influences impacting this knowledge?
 - (9) What would help you identify, use or transform this knowledge more effectively
 - (10) Which parts of this knowledge do you consider to be
 - (a) in excess / abundance,
 - (b) sparse, an
 - (c) ancient / old / outlived its useful life?

2. Which categories listed in Question 1 is currently available to you?
3. Which categories of knowledge listed in Question 1 is currently not available to you?
4. How is knowledge currently being delivered? What would be a most effective method for delivering knowledge?
5. Who are the 'experts' in your organization housing the type of knowledge that you need?
6. In what form is the knowledge that you have gained from the experts
7. What are the key documents and external sources that you use or would need to make your job easier?

TWO: Identifying what knowledge is missing in the targeted area

8. What categories of knowledge listed in Question 1 do you reuse? Are other instances where knowledge is not typically reused, but would be helpful?
9. For each category mentioned in Question 1..... 9.1 To what degree could you improve the level of performance by having access to all the knowledge cited?

<p>9.2 Who or what might serve as potential sources of this knowledge?</p> <p>10. What types of questions do you have, to which you cannot find answers?</p>
<p>11. Of the knowledge missing, which types are related to:</p> <p>4.1 Job performance</p> <p>4.2 Competitive advantage of the organization</p> <p>4.3 Possibly lead to future expansion of the organization</p> <p>4.4 Simply administrative questions</p>
<p>12. What departments / people did you think would answer your question/s but did not?</p>
<p>13. Who has asked questions (that you are aware of) that have not been answered? In what department do they work? What level are they (i.e. job title).</p>
<p>14. What people / departments have contacted you for information? Please specify the level of the requester, whether s/he is a new employee (less than 1 year), a medium-term employee (1-3 years) or a long term employee (over 3 years).</p>
<p>15. From the above questions you have been asked , what knowledge was requested that you consider to be</p> <p>a. Essential for business performance.</p>

<p>b. essential for the organization's competitive advantage</p> <p>c. important for leading innovations and new business areas in the future.</p> <p>d. outdated and no longer useful for the business.</p>
<p>16. What mechanisms might be useful for encouraging knowledge sharing and transfer in your organization?</p>
<p>17. Which aspects of your organization seem to provide barriers to effective knowledge management? (i.e. what constraints impede knowledge sharing and transfer?)</p> <p>18. What are the main reasons that you could have made errors/ mistakes on the job?</p>
<p>19. Has your organization considered outsourcing in the last 5 years? If yes:</p> <p>a. in what areas was the outsourcing considered?</p> <p>b. If outsourcing has taken place, Why?</p>
<p>20. How much time do you spend looking for knowledge?</p>

APPENDIX B

INTERVIEW QUESTIONS

Business Concept/ Leadership

- (1) Is the role of knowledge clearly articulated in the organization's mission, objectives and plans?
- (2) Do most employees have some understanding of the organization's strategy and objectives? Do they understand their role in making these achieved?
- (3) Does most staff get opportunity to input into the strategy?

Organizational Culture, Human Infrastructure and Structure

- (4) Comment on the organizational culture
 - Are most projects managed by team
 - Time for learning
 - Motivation / rewards
 - Flow of information
 - Share information
 - Is staff empowered to make their own decisions on most issues?
 - Is your training approach learner centered and does it mesh with the day-to-day activities of the organization?
 - Are employees encouraged to take risks with new ideas?
 - What kind of partnership exists between management and employees?
 - What is the level of computer literacy of most people within your organization?
- (5) Comment on the organizational structure
 - Levels
 - Partnership with management
 - Workplace setting

Managing organizational knowledge processes

- (6) How do you generate knowledge?
- (7) Please describe various methods in which you codify knowledge (e.g. knowledge maps of who knows what, printed sources, databases of customers and actions).
- (8) What mechanisms exist to transfer knowledge from experts/people/teams to other people?

- (9) Are important meetings videoed or recorded for later reference and sharing of knowledge?

Knowledge centers

- (10) Does your organization have a knowledge center/hub/library where one can find out about the best sources of knowledge?
- (11) Are your physical holdings and their contents searchable online?
- (12) Is knowledge indexed and mapped using a classification scheme?

Knowledge publicity/marketing

- (13) Do your publicity and marketing messages convey the importance and depth of your know-how?
- (14) Is information and knowledge readily available in a flow that enhances your services to your customers?
- (15) Have you considered reselling your core expertise in a way that will generate new revenue streams?

Knowledge Measurement

- (16) Are bottom-line benefits of your knowledge processes clearly articulated?
- (17) Does your organization measure and manage its knowledge resources in a systematic manner?

Technology infrastructure

- (18) Is information technology used just to process or manage knowledge?
- (19) Are there discussion forums that support learning networks or communities of practice?
- (20) How many databases exist within your organization?
- (21) Can all-important information be quickly found on your organization's intranet?
- (22) How many information security controls (firewalls) exist within your organization?